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"A good salesman is truly the ambassador of his organization"

Salesmen Play Important Role in Merchandising Program

Part I—Proper Realization of Distribution Problems, Careful and Efficient Selection of Personnel Essential to Successful Selling

By "Steel Executive"

CHANNELS of distribution used by the steel industry of the United States in selling approximately 35,000,000 tons of steel annually determine and regulate the sales policies of the individual units. Paradoxical as it may seem, often the customer of the steel plant, the buyer, is the salesman, in that this customer fabricates and sells the finished product to the final consumer. This is true to the extent that many steel companies depend upon their customers to create sales.

These distributors may be subsidiaries of the steel plant; they may be distributing companies in which the steel company has a monetary interest; or, more frequently, they may be customers with whom the steel companies have had such long standing associations that each customer has become an acknowledged distributor for one particular mill. Besides these three, there are hosts of independent buyers, manufacturers, wholesale jobbers, and consumers, all of whom constitute the open market for steel.

The relationship between the mill and the first three classes of distributors mentioned is close, of necessity, because the distributor must be protected at all times, and assured of a price, quality and service which will facilitate successful competition, not only for a share of the steel tonnage placed in the territory, but also to supersede products other than steel. The heavy

tonnage of steel used in skyscrapers, bridges, ships, oil well supplies, etc., generally moves through these channels of distribution. These customers carry on the constructive sales propaganda that sells steel, competing with each other and with products other than steel.

It is among the fourth class of customers that steel salesmanship reaches its highest point of competitive efficiency.

For years the steel industry has been content to rely solely on its distributors for the creation of steel sales. Only recently have some branches of the industry awakened to the highly important and necessary task of trade extension in creating new uses and new markets for steel, and in giving its distributors the support and assistance they justly are entitled to the kind of support the cement, lumber and other industries have been giving their distributors for many years.

The awakening of the entire steel industry to a realization of this fact and its subsequent action will be of extensive import. It will constitute a decisive, forward movement in sales policies.

Personal Selling Is Intensive Factor

In the general scheme of steel sales, personal selling is a live, virile, intensive factor, in which the executive, sales and operating heads and, in fact, the entire organization vitally are engaged.

A prominent sales executive has defined this as follows:

"Personal selling means selling by personal contact, and may depend upon the reputation of the company, the quality of the product, or the personal qualifications of the salesman. It differs greatly from selling by personality, where the completion of the sale depends solely upon the attributes of the salesman. For example, a man might sell to a complete stranger through personality alone, while personal selling means selling to friends, or at least to those acquainted with the salesman or his company."

"The establishing of confidence between the seller and buyer through personal acquaintance undoubtedly stands at the top of all methods of selling. After mutual confidence is established it is not always essential to make frequent calls in person, as the cordial relationship can often be continued by correspondence, which is the next step in selling. Mutual confidence is the true basis of all business relationships, and can only be gained through fair dealing, gentlemanly conduct, and courteous respect for one another's opinions. Advertising, exhibition, distribution of samples, and similar efforts of selling merely create a favorable background for personal approach.

"Salesmen are the eyes and ears, as well as the mouthpiece of their company, for it is just as essential to correctly and fully inform headquarters of the buyer's wishes, requirements and conditions, as it is to properly represent the company to the buyer. The salesman is the 'go-between', who should fully and completely represent both buyer and seller."

The personal element in steel sales extends far beyond the ordinary conception of the relationship between the salesman and the buyer. The salesman is the ambassador of his organization. His ultimate aim, his goal, must be to establish friendly relations between the organizations of the buyer and of the seller.

So, in discussing personal selling in steel, the subject must be approached from this broader conception. While it is just as necessary for the steel salesman to get his personality across and to establish personal confidence, respect and sincere relationship with the buyer as it is in any other industry, it remains for the two organizations to be drawn together by bigger and more lasting confidence, faith and respect in each other. The salesman must reflect the character of the organization he represents, he must be a credit to it, he must sell his organization as well as the product it produces.

A great variation exists in the remuneration of steel salesmen. Only a few companies have a yardstick by which they measure the salesman's worth and regulate his returns accordingly. The policy of two large steel corporations is as follows:

"Methods of compensation depend largely upon the character of the business. If the salesman is governed by markets over which he has no control, a straight salary with a bonus out of the general fund at the end of the year is doubtless the most satisfactory—his bonus being proportionate to his efforts. If the salesman is selling to different classes of buyers, thereby having different ranges of prices, it may prove practicable to pay a salary and a small commission. A straight commission on sales or tonnages is at times favorable, principally in markets where there is not sufficient business to justify the expense of a salaried representative."

"Compensation has a direct effect upon personal selling. As a minimum, a man should receive sufficient remuneration to permit him to maintain, without worry, a position which is in accord with the dignity of the company he represents. As a further incentive, a bonus is decidedly recommended, but such bonus should be on a sufficiently broad basis to prevent the salesman indulging in narrow or selfish practice."

Steel products are sold by the gross ton, net ton, hundred weight and pound. Invariably, when commissions or incentives are used they are estimated on the ton basis, even when the product is sold by the pound. The percentage basis seldom is used in steel sales.

The three most usual forms of compensation are: The straight salary, salary plus bonus, and commission. Most salesman are employed by the month and paid semimonthly, until they have established their worth; then, as a rule, they are employed by the year.

Salary Regulated by Years of Service

A salesman's salary usually is regulated by years of service and tonnage sold, yet because steel is constantly in the state of either "feast or famine", the years of service and the salesman's standing with the trade have a more direct bearing on the amount of salary paid. There are sound reasons why this should be true, even though it appears to be an unscientific method of fixing remuneration. There are times when the best salesman may find it impossible to sell his quota of steel in his territory. The demand may be there, the buyers may be offering him fair tonnages daily, yet through no fault of his own he may not be able to take an order, because the price-fixing policy of the home office may put him in a noncompetitive position. In like manner, there may be times when he will sell much more than his quota, and dominate his particular territory through no special ability or qualifications of his own, due to the home office naming prices which command the business. Inconsistencies, too, in efficiency and results are bound to present themselves, due to the vast fluctuations in demand.

Under these circumstances it is seen that demand and the price fixing policy of the company directly control the salesman's efforts. In the final analysis steel products are sold on price, a variation in price of 50 cents or $1 a ton often will influence a buyer to change his source of supply.

Because of this fact, the steel salesman has been termed an order taker, which is eminently unfair. It is true that some steel salesmen yield frequently to the questionable efforts of the buyers to break down a price without lower competitive prices actually existing; but the majority of steel salesmen can, and do, hold their accounts on an equal basis, price, quality and service being the same.

Aside from these three general methods of compensation, little can be said about the others in existence, except that they are purely experimental. They are methods adopted

by other industries which, for the reasons mentioned, usually have not been found efficacious in the steel industry.

Quoting from the experience of two prominent steel sales executives:

"Volumes have been written on methods of selecting salesmen, and quite an amount of social and psychological science has been applied to this branch of management, which we hope will bring results. Briefly, however, we would say that pleasing personality, good health, inherent honesty and clean life are prerequisite for a good salesman. The most important qualities, however, are intelligence and ability to work hard, these two being responsible for 75 per cent of a salesman's success.

"College education is a great help, but in the beginning of his business career the college graduate has to go through the same hard mill of practical experience as the graduate of the university of hard knocks. It is only after some time of practical work that the real benefit of a college education can be felt."

"The most necessary attributes of a salesman are belief in his company and enthusiasm in the sale of its product."

The prime requisites of a successful steel salesman are character, intelligence, personal magnetism and determination. Given these qualities in addition to proper training, be he dark or fair, long or short, square headed or round headed, a good salesman can be developed. The college man, because of his training and scientific education, always should be better equipped to enter the field of steel sales than the man who has not had the benefit of such preparation. The steel salesman must be an intellectual machine, capable of setting and maintaining a strenuous pace. To withstand the strain successfully of interviewing many buyers each day, to cope with the demands made upon his patience and vitality, he must be strong and must possess an abundance of good health, good nature and should have an indomitable spirit.

Probably the best scientific method of selecting a salesman is that recommended by Walter Dill Scott, president of Northwestern university, Evanston, Ill., in which the applicant is subjected to interviews by a committee appointed for that purpose, consisting of three or five members, who have a specially prepared chart of qualities and proclivities to be looked for and measured. By this method certain psychological reactions are overcome, and a true measure obtained of the impression such an applicant makes on a number of men.

However, in actual practice, "from the ranks", is the most comprehensive answer as to the origin of steel salesmen. Office boys, clerks, stenographers, mill clerks, chemists, operators and laborers have found their way "hewn" their way, would be a better expression, into the ranks of steel salesmen.

Steel is a language of figures, and this language can be acquired and mastered best by personal acquaintance with the product in the mill. So, in the selection of steel salesmen, the importance of knowing the language has, in the past, exceeded other vital considerations, which, however, have, been given some thought.

At present more emphasis is being placed upon an adequate metallurgical or engineering education, and in the selection of college bred men. Physical, mental and personal qualifications are studied and critically examined before an apprentice for a sales position is given an opportunity to go into the plant, don overalls, and learn the business and its language.

The applicant whose intelligence guides him to appreciate the necessity of obtaining a job in the plant, where he can acquire a real knowledge of the art of making steel, where he may don overalls and mingle with the iron men of industry, and become innured to the grease and grime, to the end that he may be ably fitted to talk steel from a practical as well as a theoretical standpoint, is the successful salesman in embryo.

The reason for this is obvious. The buyer of steel knows his business. He is not won with catch phrases and platitudes. He can be interested only by a man who knows the steel business as well as, or better than he knows it, and upon whom he can rely for advice and judgment when problems present themselves.

Therefore, in the selection of a steel salesman, special emphasis should be placed on this, that whether he be from the ranks or from the outside, three distinct qualities, with out exception are essential, character, intelligence, and magnetic personality. Given these qualities, one then is justified in spending time, money and effort in educating and training him in the profession of salesmanship.

(To Be Continued)

Industry Needs Literature on Technic of Selling

WITHIN the past decade the literature of business has been enriched by hundreds of treatises on selling, yet during that period few if any authoritative articles dealing with the practical application of scientific salesmanship to the steel industry have appeared. The absence of any notable work on the selling of steel and steel products doubtless is due to the lamentable apathy of steel producers to the science of selling. For many years their chief interest lay in production, but recently a deep concern over the problems of selling has been manifested.

In view of this growing recognition of the importance of selling, IRON TRADE REVIEW *is pleased to present a series of three articles dealing with the fundamentals of salesmanship as applied to steel and allied products. The series, of which the accompanying articles is the first installment, will cover the following points:*

1. *Personal selling.*
2. *Compensation and incentives.*
3. *Selection of salesmen.*
4. *Training of salesmen.*
5. *Samples and equipment.*
6. *Selecting the territory.*
7. *Securing the interview.*
8. *Methods of interviewing and closing sales.*
9. *Methods of delivery.*
10. *Relation of salesmen to collections.*
11. *Building sales morale.*

The author is a widely known executive in the steel industry, who for certain reasons has preferred to conceal his identity. His wide experience in selling lends authority to the series, which we consider to be the first notable contribution to the literature of specialized salesmanship in the steel industry—THE EDITORS.

Fourth Article—Acids, Bath Temperature and Pickling Time

FUNDAMENTALS of pickling are the same in all plants; the results obtained are radically different. Each plant has its own set of conditions which seemingly are rigid, and predetermined by years of practical experience. To make extensive changes in these methods might upset and undo the work of years. The present discussion, therefore, will be limited to general principles of pickling rather than to offering any suggestions for overcoming specific troubles or conditions.

Pickling is the process of immersing iron and steel in acid solutions for the purpose of removing the scale and iron oxides adhering to the surface. It, therefore, is a process which deals primarily with the conditioning of the surface of steel.

Surface Area Important

The amount of acid used depends on a number of conditions, one of the most important of which is the surface area to be pickled. Bearing in mind that pickling is a surface operation, it is natural that results should vary widely as the surface area varies. A cube of steel 1 foot square weighs approximately 591 pounds and has a surface area of 6 square feet; one thousand square feet of 28 gage black steel sheets weigh approximately 625 pounds. The weight in both cases is almost the same, but the surface area in the second instance is at least 150 times the surface area of the first. It is surface area that is pickled, not weight; it is surface area, therefore, that is important from the standpoint of amount of acid per ton of steel pickled. This matter is called to attention because in some plants the amount of acid used is figured per ton of steel pickled, while in others the amount of acid used is figured per 100 or per 1000 square feet of surface area pickled. This is important if the two are to be compared on the basis of amount of acid used per ton of steel pickled.

Factors of Consumption

The amount of acid used per ton of steel pickled is determined by the kind of scale to be pickled, the surface area covered with scale and iron oxide, and, the time the acid is allowed to act on the steel.

The removal of iron oxides and scale may be considered from two extreme viewpoints—light iron oxide to no scale, and heavy iron oxide in the form of thick, hard, plates of scale. In the first case little acid is required to pickle the surface; in the second case, however, a large amount is necessary. In addition to removing all the scale, more acid is used in both cases than actually is necessary to remove the scale. This additional acid is used in attacking the steel base under the scale, and must be taken into account with the amount used for pickling.

After castings have been thoroughly sandblasted there is little scale to be removed by pickling. If a large number of sandblasted malleable iron castings are weighed before and after pickling, the scale loss will be found so small that little difference can be noted from the sandblasted weights. The ratio of pickled weight to black weight is therefore practically 1.000, and the amount of acid used to pickle the castings is small.

Scale Is Soft

With pickled and annealed steel the scale, which has to be pickled, is only the light soft annealing scale, Fe_2O_3. The middle of the sheets are practically clean, only the edges having been slightly oxidized by the heat in the annealing furnace. Fig. 17 shows this light oxide on the lower half of the sheet. The ratio of the pickled weight to the black weight is 0.9990. This shows the small amount of iron oxide and scale on the surface. It also shows that a small amount of acid is required to pickle a surface of this type. The ratio

THIS is the fourth of a series of articles on pickling processes written exclusively for Iron Trade Review. The first article appeared in the Oct. 27 issue. Succeeding articles will discuss the construction and arrangement of tanks, chemical reactions, fumes and ventilation and plant design. The author, Wallace G. Imhoff, is metallurgist, electric materials department, Hubbard & Co., Pittsburgh.

of the pickled weight to the black weight for various kinds of steel galvanized is as follows:

Commodities	Ratio
Garbage can, pickled and annealed steel	0.9955
Light sheet steel ash cans	0.9906
Sheet steel wash tubs	0.9875
Bright wire, 5/16-inch diameter	0.9874
Round steel, ½-inch diameter	0.9859
Sheet steel tanks, ⅛-inch thick	0.9855
Bolts, 4½ x ⅜-inch	0.9850
Sheet steel water pails, 12 quart	0.9815
Small bolts and lag screws	0.9753
Machine bolts, square washers, etc	0.9722
Band steel, ⅛ x 1 inch	0.9658
Angle steel, 2½ x 4 inches	0.9593

The weight of the scale pickled off is replaced by zinc put on in galvanizing, so that this ratio of pickled weight to black weight has a monetary value. For example suppose an estimate is to be made on the zinc required to coat 30,000 pounds of angle steel. The ratio of galvanized weight to black weight is 1.0092, giving a galvanized weight figured from the black weight of 30,276 pounds, or 276 pounds of zinc required. If zinc has a market value of 6 cents a pound the value of the zinc used is $16.56. But if the cost is figured on the pickled weight the result is different.

Involves a Loss

The ratio of the pickled weight to the black weight is 0.9593 giving a pickled weight for the steel of 28,779 pounds. The ratio of the galvanized weight to the pickled weight is 1.0522 or 30,281 pounds, and the zinc deposited is the difference between the galvanized weight and the pickled weight which is 1502 pounds. Assuming the same value of 6 cents a pound for the zinc the cost of the metal required is $90.12 instead of $16.56. The difference represents a loss of $73.56. The same principle applies to various kinds of steel that are pickled and galvanized. It, therefore, is important to make some kind of a practical classification of the materials galvanized, and then to roughly determine the ratio of the pickled weight to the black weight and the ratio of the galvanized weight to the pickled weight. Once the figures have been determined with a fair degree of accuracy, they may be used as the basis for cost analysis without actually going through the process of weighing the physical materials.

As previously stated the amount of acid required per ton of steel largely is determined by the kind of scale to be pickled, the surface area covered with the scale, and the time the acid is allowed to act on the steel. That there is considerable difference in the character of the scale and the amount of acid required to remove it, is shown by the various names given to the pickling operations in the steel mills. For example, by "black pickling" is meant the pickling ordinarily done on sheets from the hot rolls in a tin mill; by "white pickling" the pickling of cold rolled and annealed sheets in the tin mill; and by "pickling for galvanizing" the pickling of hot rolled and annealed sheets before galvanizing.

The strengths of acid are usually between 2 and 10 per cent by weight. The temperature varies from 140 to 180 degrees Fahr. The temperatures usually are held as high as is convenient by introducing steam directly into the bath.

A probable average of the amount of acid used in pickling is about 100 pounds to the ton of sheets in black pickling, or pickling for galvanizing, and one third this amount, or less in white pickling. This of course varies

FIG. 17—LIGHT IRON OXIDE ON SURFACE OF PICKLED AND ANNEALED SHEET

largely with the gage of sheets and the heat treatment. In the more progressive plants the acid strength is controlled by titration and the temperature by thermometer readings but this is not the general practice. In the great majority of plants, control is by rule of thumb or is at the discretion of the pickling foreman.

The amount of acid used for forgings, wire products, and angles, etc. varies. It is the same or even higher than that required for pickling sheets. For annealed lag screws, nuts, small bolts, etc. about 100 pounds of acid per ton of steel is required; for large bolts and heavy round forged materials about 115 to 120 pounds per ton of steel; and for large angles, braces, etc. 150 to 160 pounds of acid per ton of steel.

The acids generally employed in pickling steel are sulphuric acid and commercial muriatic acid. Some of the features of practical pickling are directly traceable to the kind of sulphuric acid used. Practical picklers have encountered two kinds of commercial sulphuric acid, the common clear or slightly milky white variety, and the red variety.

The term sulphuric acid as technically and commercially understood, seldom refers to the actual monohydrate or to any of the other recognized hydrates of sulphuric acid. It refers either to a series of solutions of the monohydrate in water or to a series of solutions of sulphur trioxide in the monohydrate ($H_2SO_4 + SO_3$). The first series are known commercially as chamber acid (50 to 55 degrees Be.), oil of vitriol (66 degrees Be.), and the monohydrate or concentrated acid, containing about 98.5 per cent H_2SO_4. The second series are termed fuming, or Nordhausen acids, and always are estimated alkalimetrically according to the percentage of free sulphur trioxide contained.

Technically, therefore, sulphuric acid might be considered to be the generic name of a series of solutions of sulphur trioxide (SO_3) in water, some of which are distinguished by variations of properties which occur uniformly with uniform percentage mixtures of sulphur trioxide and water. Most of the latter, however, are merely solutions of convenient strength for use in the arts.

Three Processes Used

There are at present three methods in general employed in the manufacture of sulphuric acid, namely, the lead and chamber process, the contact process, and, the commercial process. In the first process the sulphuric acid is the clear or slightly milky white acid of commerce. The white sediment which is found in the acid is a form of lead sulphate derived from the action of the acid on the lead walls of the chamber. When this acid is stored in lead lined tanks the white sediment is derived from the action of the acid on the lead lining and from the sediment in the acid pumped over from the tank cars.

It is important to call attention to how the red variety of sulphuric acid is made. At the beginning of the process the large part of sulphur dioxide is obtained by roasting sulphur ores. Pyrite, FeS_2, yellow metallic-looking mineral, can be burnt in a suitable furnace on account of the large amount of sulphur it contains. The reaction is $4\ FeS_2 + 11\ O_2 = 2\ Fe_2O_3 + 8\ SO_2$.

The Fe_2O_3 is the red oxide of iron. Good pyrite ore burns unassisted, while impure pyrite and zinc-blends (ZnS) have to be heated, to a greater or less degree, artificially to maintain combustion. The gases from the various furnaces pass into a long dust

flue, in which they are mingled with the proper proportion of air, and have an opportunity to deposit oxides of iron and of arsenic and other materials which they transport mechanically. This explains how arsenic gets in the pickle and why some commercial sulphuric acids are red. The red color is due to the fine particles of Fe_2O_3 which were carried over into the acid from the roasting stage.

When the pickler arrives on the job he usually finds his process of pickling already is determined. There are a few steps he can control, but they do not always solve his troubles. He can raise or lower the temperature, add water and raise or lower the level of the acid solution. Most of the other steps are beyond his control.

Temperature Is Important

The acid strength is determined by production, tank capacity and the kind and amount of scale to be removed. The best working conditions in the pickle room are obtained when the temperature of the acid is held between 140 and 160 degrees Fahr. The best working conditions, however, cannot always be maintained. Suppose two plants are doing exactly the same kind of work and production in each plant is about the same. In the one plant the pickle is run at 130 degrees Fahr. the acid strength varies from 1 to 5 per cent. In the other plant the temperature is held from 200 to 212 degrees Fahr.; and the acid strength varies from 8 to 12 per cent. Each plant has six galvanizing kettles doing exactly the same class of work, pickling the same scales, and running at approximately the same production.

The first plant has eight large pickle tanks while the second plant only has two of medium size. The same production is put through two medium-sized tanks that is being put through eight large tanks. The difference in capacity of the one is offset by the speed of pickling, which is controlled by acid strength and temperature, in the other. Working conditions in the first plant are good; working conditions in the second are abominable. The answer to better working conditions for the second plant is increased pickle tank capacity. This feature will be discussed in more detail in a later article.

Another practical feature of importance is the volume of the acid in any particular tank. In pickling sheets, tubes, or any material that is handled by a machine or crate, the depth of the acid in the tank can be to the top of the tank. In industries, however, where hand pickling still is used the depth of the acid usually is kept just above the height of the articles being pickled. This is done because the rubber gloves worn by the picklers are sometimes short, and deeper acid solution would go over the top of the glove. A small volume of acid tends to produce dirty work, stagnant pickle, and slow speed. It is similar to the dregs of a stagnant pool of water in the last stages of drying up. A large volume of pickle gives clean work, better pickling speed, and a better acid action. For this reason the solution level should be kept as high as possible above the level of the material in the bath.

Another practical feature of pickling which causes difficulty at times is the rusting of the material between operations from the sulphuric to the muriatic tank, or between the muriatic tank and the process of coating the steel. The remedy here also is found in tank capacity. Referring to the foregoing illustration the first plant pickling with a 1 to 5 per cent solution uses a muriatic wash of about the same strength. The second plant with an 8 to 12 per cent sulphuric acid solution uses the full strength commercial muriatic acid for the acid tank. The reason for this is that a strong sulphuric acid solution, at a high temperature, with the steam, air, and moisture present in the pickle room accelerate corrosion.

The stronger the acid, the higher the temperature, and the more steam and moisture available, the quicker the steel corrodes and vice versa. The muriatic acid strength is determined by the strength and temperature of the sulphuric acid and how long the material will be exposed to the air before it is coated. The best pickle practice is to keep the material under acid and not allow it to be exposed to the drying and corrosive action of the air any longer than is absolutely necessary. Each particle of rust and corrosion makes it much harder to produce a perfect coating. This factor is of vital importance in the enamel industry and is responsible for a large amount of enamel trouble which shows up later in the burning.

Pickling time, strength, and temperature are largely dependent primarily on production and tank capacity. These are the two vital components which govern the other factors. The tank capacity with the production determine how fast the material is to be pickled. The speed of pickling depends on the temperature, acid strength, and kind of scale to be removed. The amount of scale removed and iron dissolved depend on how long the article is pickled. The amount of zinc deposited as galvanized coating depends partly on the pickling time. Submersion time, gage of steel base, temperature of zinc bath, production speed, and other factors also influence the weight of zinc coating deposited. The effect of pickling time is shown by the following example—

Pickling time, minutes	Galvanizing time, seconds	Zinc deposited grams
1	20	19.50
2	....	20.00
3	....	19.60
4	....	19.70
5	....	20.80
6	....	19.60
8	....	21.50
9	....	21.40
11	....	22.40
12	....	21.70
13	....	22.10
14	....	20.60
15	....	22.60

There is the usual experimental variation but the example clearly indicates the longer the pickling time the heavier the zinc coating deposited. The same facts are to be found in practice.

From this discussion it is seen that it is practically impossible to set a standard pickle strength. Where space permits the ideal conditions are a tank capacity which gives with the desired production an acid strength of 4 to 5 per cent at a temperature of 140 to 160 degrees Fahr. or an average temperature of 150 degrees Fahr. Such a strength produces a minimum of fumes, and gives the best working conditions generally. Production and tank capacity influence the pickle tank life, tie-rod corrosion, and tank up-keep and repairs. The proper balance between the tank capacity and production is the most important practical feature in picklng.

Issues Progress Report

A progress report of the study of typical clays and grogs used in the manufacture of clay refractories in the principal producing districts of the United States has been published as technological paper No. 4 by the American Refractories institute, Pittsburgh. The paper entitled "The Significance of the Elasticity and Thermal Expansion of Fire Clays with Reference to the Spalling of the Fired Products" by R. F. Geller, chief, refractories section, bureau of standards, discusses fire clay from Pennsylvania, Kentucky and Missouri fields; and, quenching tests, absorbtion after reheating, thermal expansion, and modulus tests of commercial brick and a discussion of the results.

The name vanadium is derived from Vanir, the name of two stocks into which the gods of Norse mythology were divided.

Economical Oxyacetylene Cutting Needs Intelligent Supervision

By J. L. Anderson

THE oxyacetylene welding and cutting process was introduced into this country a little more than 20 years ago, but during this short period of development the process has grown to enormous proportions. In later years it has grown by leaps and bounds until now a great number of plants are required for the production of oxygen and acetylene. In addition, large factories have been established to manufacture torches and regulators and other apparatus employed in the combustion and application of these gases in the metalworking and other industries. The process has two distinct branches, namely, welding and cutting. The latter has become most important, it being estimated that more than half of the oxygen produced in this country is used in cutting operations.

The oxyacetylene process, generally speaking, offers great opportunities for economical operation and permits manufacturing processes to be performed at considerable savings over old-time methods. However, due to lack of appreciation of the maximum economies that can be obtained by wasteful practices have crept in and often are unrecognized.

We have called attention to the importance of the oxyacetylene cutting process from an oxygen consumption standpoint. Let us now consider the factors that enter into the economical application of this process.

Chemicals Were Used

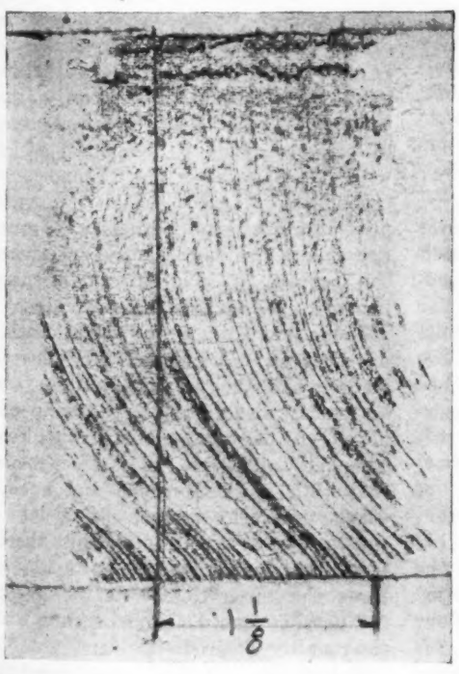
Inasmuch as the cutting operation is dependent primarily on oxygen, supplied under more or less pressure, we will consider oxygen as the first and most important factor. In the early days, oxygen was produced from chemicals and as the quality of the chemicals, design of the equipment and intelligence of the operators varied, the quality of the oxygen varied accordingly. As the industry progressed, oxygen was required in greater quantities and of uniform quality. To meet these conditions, the liquefaction process was established and practically is universal method of production.

Rather early in the history of the process, the importance of the purity of the stream of oxygen projected through the cut became recognized. Much work has been performed in determining the economy afforded by the use of high-purity oxygen. As a matter of fact, the importance of this factor now is so universally conceded that oxygen of 99.5 per cent purity can be procured in almost every industrial center. Considerable data have been published on this subject by trade papers and the technical press and a study of this literature indicates that simple shop tests can be arranged to demonstrate the value of purity.

Next in importance is the matter of equipment or apparatus as it is usually called. The cutting process subjects the apparatus to severe conditions, and it is essential, therefore, that if economy is to be secured in its operation, careful consideration must be given to its construction and durability when purchased.

The entire equipment—torch, regulators, and hose—operates at pressures considerably higher than required in welding. The surface of the material to be cut frequently is in a very undesirable condition, be-

From a paper presented before the Philadelphia section of the American Welding society, Nov. 21. The author is manager of research, Air Reduction Sales Co., New York.



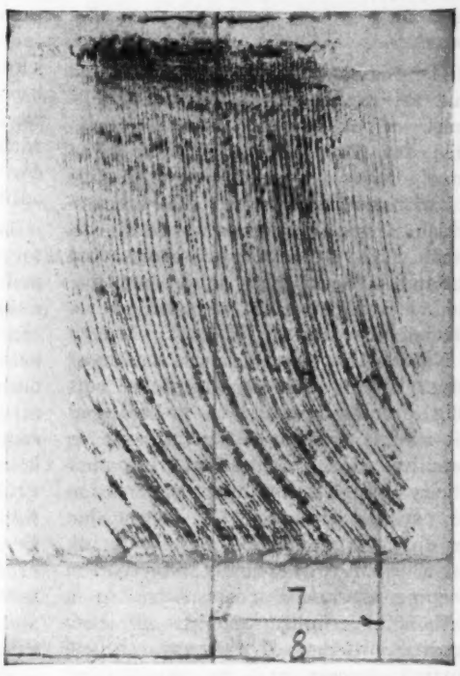


Fig. 1 (Left)—The 1⅛-inch drag of operator No. 1 ordinarily would indicate economical cutting, however, the high speed, large tip size and low oxygen pressure showed the pronounced drag to be the result of dilution or contamination of the oxygen stream until cutting practically ceased. Fig. 2 (Right)—An example of economical cutting. Operator No. 2 used a small tip and had a fine and regular drag, the top edge was sharp and the face perpendicular, denoting a narrow kerf with clear sharp cutting, affording only a slight opportunity for atmospheric dilution.

ing imbedded with burnt sand, heavily coated with rust or covered with heavy paint. Pockets and corners may be present also. All of which prolong the preheating period, deflect the heat back on the torch and operator or otherwise subject the equipment to undesirable heat conditions.

Through rough handling, such as using the torch as a pry to loosen the cut piece or as a hammer to knock off slag or to push heated sections aside, the equipment often is abused to such an extent that only the most sturdy will pay for itself before being worn out. Effective maintenance of equipment is an important factor in the economical use of the cutting process.

Sufficient equipment should be on hand so that torches, regulators, tips and hose can be withdrawn from service for repairs when necessary without interfering with plant or department operations. An inadequately equipped cutting department cannot operate economically; torches of a type suitable for the work should be provided and a range of tip sizes and styles should be on hand to meet any cutting condition that may arise.

The regulators should be of a type that are capable of passing large volumes of oxygen at pressures suitable for the heaviest cutting. The hose should be of the best quality to withstand the wear and tear to which it is subjected in work of this kind. The value of the oxygen wasted through a leaky hose in a short period will far exceed the cost of replacing the hose.

Next in importance is the factor of supervision. The oxyacetylene cutting process appears to be so simple and is so simple that it is often penalized for this reason. Its simplicity invites unintelligent supervision or perhaps the need for supervision or direction is not recognized at all. Supervision to be really effective in keeping operating costs down to a satisfactory figure requires a thorough knowledge of the oxyacetylene cutting process and its possibilities. A careful study should be made of what is required from the standpoint of quality of cut, production per hour per man, cost per ton or other unit, space required for efficient operation and other factors that seriously affect the results.

This study should lead to a consideration of equipment requirements and methods of operation and will determine the amount of supervision or direction that is necessary in order that the work may progress steadily and at a satisfactory cost. Because it is difficult to control, the human element will trouble the management more than any other one factor. While capable, industrious men always should be secured, there will be a great variation in their ideas as to those details of the process which are really important factors in economical cutting.

The individual operator should be guided in the selection of tip sizes and oxygen and acetylene pressures for the varous thicknesses and kinds of material to be cut. He should be urged to move the torch forward as rapidly as it will cut and at the same time produce a satisfactory surface. Efficient supervision will always take into consideration the ability of the operator when assigning work and will continuously strive to educate the industrious man in order that he may become a more valuable operator.

Tip sizes and the proper pressures for operation always will be specified for various thicknesses and conditions. The approximate speed also can be established within close limits as a guide for the operator. The desired quality of surface can be established and economy in oxygen consumption can be secured if sufficient attention be given these particular features. The selection of tip size and style governs, to a considerable extent, the quality of cut produced, and largely determines the pressure of oxygen and fuel gas used and the speed at which satisfactory cutting can be accomplished.

Manufacturers' tables of tip sizes can be followed rather closely with profit, but the tendency is more often to use larger sizes than those specified in the belief that by so doing faster cutting can be accomplished. As a matter of fact, faster cutting can more often be done with small suitably-sized tips for the reason that the chilling effect is minimized and there is less induction of atmospheric oxygen and nitrogen into the cutting jet to dilute and contaminate the stream of oxygen that will do the cutting.

The style of tip should be given consideration and, in general, it is safe to assume that one with multiple heating flames of small size is suitable for most cutting except when the material is covered with heavy refractory covering of rust, scale or paint, in which case larger preheating flames are desirable. The cutting tips receive severe abuse and too much care cannot be exercised in maintaining their original perfect form and condition.

Many Factors Involved

Tip sizes, pressures, speeds of cutting, and quality of cut are so closely related and have such an important bearing on economy that we will consider them in greater detail. The establishment of a correct schedule of oxygen and gas pressures for the cutting of various thicknesses and grades of material is just as important as the insistance in the use of suitable tips. In fact, the specifications for tip sizes and oxygen pressures are so closely related that it is impossible to think of one without considering the other.

We have said that the tip with the smallest cutting oxygen stream orifice which conditions permit should be used and consequently in the interest of economy we must also say that the lowest reasonable pressure of oxygen should be employed which will give satisfactory performance at economical speeds. High oxygen pressures are usually wasteful of oxygen unless the operator by experience can operate at a high enough speed to utilize the oxygen economically.

This brings us to the consideration of speed of cutting and its influence on economical operation. There can be no argument as to the influence of speed of cutting upon the cost of operation when it is recognized that with a given orifice and a constant pressure oxygen flows at a constant rate. It is important, therefore, that every effort be made to force the torch to cut at the greatest possible speed commensurate with the quality desired.

Frequently we find that speed is

Comparative Cutting Results of Seven Operators

Operator No.	Thickness, inches	Speed inches	Tip No.	Pressure, pounds per square inch	Square inches cut per cubic foot oxygen	Drag, inches	Ratio of oxygen to labor cost
1	2¾	9.45	25-4	30	7.45	1⅛	3.50
2	2¾	8.04	24-3	40	8.59	⅝	2.55
3	2¾	8.00	24-3	55	6.56	⅜	3.36
4	2¾	7.93	24-3	70	5.82	⅜	3.73
5	2¾	8.00	25-4	30	7.02	⅝	3.13
6	2¾	8.10	25-4	40	6.00	⅜	3.80
7	2¾	8.74	25-4	50	5.52	¼	4.38

thought to be the most important consideration for the attainment of economical cutting, but we need only to compare the cost of the oxygen which will pass through a tip of given size in an hour with the hourly labor cost to see that the oxygen cost is a far more important factor. As will be shown later the average ratio of oxygen cost to labor cost is 3.49 to 1, not considering overhead. It behooves us, therefore, to conserve oxygen but to the extent only that it does not penalize the operation.

We must remember that in oxygen we are dealing with an invisible power, and while we can see the sparks fly when this power is released in a cutting operation there can be a considerable portion of the oxygen wasted either through ignorance or willfulness by the combination of large tips, high pressure and insufficient speed. Let us try to remember that unless all the oxygen is brought into contact with the steel that is possible through the combined influence of stream size, pressure and speed, we are not using the oxygen cutting process efficiently.

As previously stated, laboratory tests are not required to determine the value of high-purity oxygen in cutting, and it is equally true and fortunately so that laboratory tests are not required to determine when and how economical results are obtained in shop operations. Anyone who has analyzed the phenomenon of oxygen cutting has determined that the most economical cutting is usually done where the drag lines are rather fine but regular, at no point parallel to the axis of the jet, yet nearly perpendicular to the surface at the top but curving away rather abruptly in a direction opposite to the direction of travel after one-half of the thickness of the plate has been cut, leaving both top and bottom edges of the kerf clean and fairly sharp.

Drag Line Is Indicator

As a rule, the greater the drag under these conditions the more efficiently has the oxygen been used. These conditions of drag line are applicable only for straight line work. For circular or irregular cutting, the cutting lines must approach the vertical more closely to avoid undercutting. If, however, the dimension tolerances are not too close, the same economical operation is possible.

It has become standard practice in computing cutting costs, in rating operators or in otherwise establishing values, to compare time, oxygen, fuel gas and labor cost in relation to square inches cut, considering one cut surface only. To illustrate the importance of these various factors viewed from different angles, the accompanying table gives the results obtained by seven different cutting operators working on the same grade and thickness of material. In this case, the torches were all operated mechanically and, therefore, the question of personal skill does not enter. This table will serve, therefore, to point out that greater differences may be expected in hand cutting under similar circumstances when differences such as shown can exist in mechanical operation when only the tip size, oxygen pressure, and speed are under the operator's control and no exertion is necessary other than watchfulness on the part of the operator.

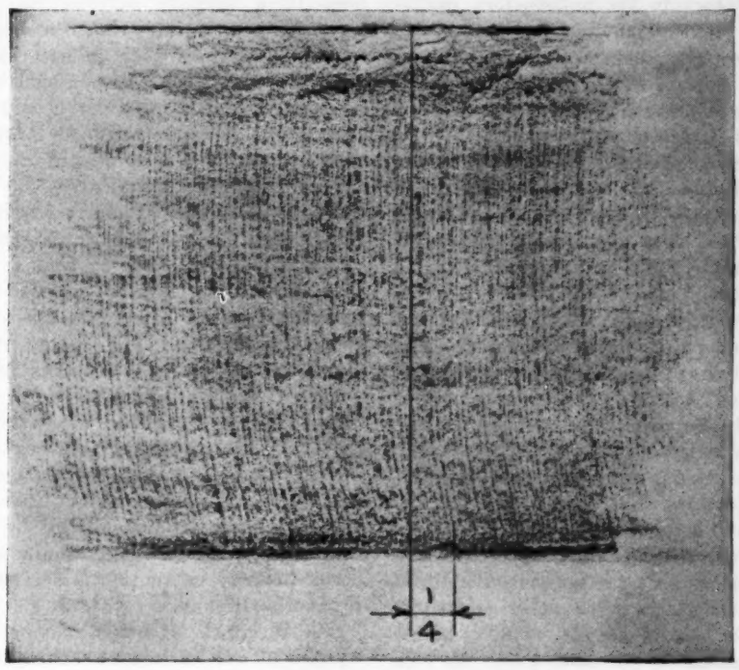


Fig. 3—Operator No. 7 favored large tips and considerably higher pressure than operator No. 1. The work proved to be unprofitable

Here we see the result of permitting operators to put into practice their individual ideas as to tip size, speed and oxygen pressures. Each operator worked on the same grade and thickness of material. Operator No. 1 believed in a large tip and low oxygen pressure and just as much speed as would permit uninterrupted cutting. He secured by this reasoning good economy, but his pressure was too low for the size of tip and he consequently did not secure the maximum speed and fell a little short of the economical cutting mark established by operator No. 2.

Operator No. 2 chose a No. 3 tip which is 39.4 per cent smaller in area than a No. 4 tip but used oxygen at 10 pounds per square inch more pressure than the larger tip. Under these conditions he cut at 15 per cent less speed but at 15 per cent more economy in oxygen. The fact that operator No. 2 cut 8.59 square inches per foot of oxygen and therefore did more economical cutting is further verified by the fact that in this instance his ratio of oxygen to labor cost was 2.55 to 1 as compared with operator No. 1 at 3.50 to 1. In others words, operator No. 2 selected a combination of tip size, oxygen pressure and speed that produced at an economical rate.

Operator No. 5 chose the same tip size and pressure as operator No. 1, but did not work up to the capacity of that combination in speed with the result that his operations were less profitable. Now let us see what it means to go to the other extreme. Operator No. 4 favored small tips and high pressure and with a No. 3 tip, the same as operator No. 2, he increased his oxygen pressure to 70 pounds and his speed decreased slightly. The result is extremely poor economy in comparison.

Operator No. 7, who believed in large tips also believed in a considerably higher pressure than operator No. 1 and a slightly higher speed than the other operators except No. 1, but not in any sense the maximum

(Concluded on Page 1428)

Unsuitable Pattern Equipment Affects Foundry Output

Responsibility for Manufacturing Standards and Policies in Foundry Rests with Management—Operating Experience Aids Salesman

By W. J. Gilmore

ONE of the most important factors in the satisfactory operation of a foundry is suitable pattern equipment. By suitable pattern equipment is meant patterns that are designed to afford maximum efficiency in foundry operation.

Many contributing factors influence the desirability or undesirability of the pattern equipment. For single jobs the loose pattern, of course, is acceptable. For multiple-run jobs a mounted pattern is essential, since loose patterns do not permit the use of modern foundry equipment. The mounting of such patterns should be adapted to the particular molding machine equipment in the foundry in which the castings are to be made.

Flasks, patterns, and core boxes in the foundry may be likened to machine tool equipment and jig equipment in the machine shop. Machine shop standards are so well established that they are taken as a matter of course by the buyer, who, whether he knows it or not, pays for the time required to set up the job and take it down, and the expense incurred in providing special tools and jigs. Standards in the steel foundry industry are not nearly so well established that they are universally accepted by the buyer, but they are just as necessary in the steel foundry as in the machine shop. The industry does not so much need new standards and new policies as they do need respect within the industry for standards and policies that are conceded to be sound.

Customarily, quotations to the customer in addition to naming the price, name the approximate delivery that the customer may expect, and probably specify that suitable pattern equipment shall be furnished by the customer. The customer, except in rare cases, has no conception of what is meant by suitable pattern equipment. Patterns are furnished by him that probably have been used by other foundries, and this fact establishes the suitability of the patterns to the customer's satisfaction. In those cases where the job has not been in a foundry before, the patterns have invariably been made by a jobbing pattern shop in accordance with the customer's order which may have been placed with no consideration given to the various features that influence the final cost of the job through foundry practice.

The average steel foundry salesman rarely sees the customer's pattern on which prices are made by him at the time of making his quotation. He sees the pattern after it is received from the customer and before it is placed in production, almost as infrequently. Unless the pattern is specifically brought to his attention by the shop management, because it is not a suitable pattern from the shop management's point of view, its suitability is probably established by the fact that it has been in use in some other foundry or that it is acceptable to another foundry.

The ill effects of unsuitable pattern equipment are more far-reaching than the average foundryman appreciates. The plea of the customer is frequently that deliveries are unsatisfactory. This is a condition for which pattern equipment alone can be responsible in several ways. The slowing-up of production in the foundry because of unmounted and insufficient patterns is frequently responsible for unsatisfactory deliveries.

At the time the quotation is made and delivery promised, the salesman frequently does not fully inform the customer just exactly what will be required in the way of pattern equipment. The result is that a part of the time required for delivery is taken up by revamping pattern equipment. Delivery consequently is delayed, and the incorrect impression left with the buyer is probably that because of repeated delivery failures the productive capacity does not exceed the demand, and that the steel foundry business must indeed be a profitable one. The result is that a survey of the buyer's needs is made to forecast what can be done by putting in a furnace for making steel castings in one corner of their plant, supplying their own needs and selling the surplus in the open market. The carrying out of such a plan results in economic waste as consumers of castings cannot expect to produce them as efficiently as the steel foundries that specialize in making only steel castings.

Responsibility for manufacturing standards and policies in the foundry rests with the executive management. If the latter permit the sales management or shop management to make concessions from what are recognized as the best standards and policies, their subordinates will, of course, readily acquiesce since they do not fully appreciate how far-reaching are the ill effects of disrespect to the standards and policies that are conceded to be sound.

This matter of suitable pattern equipment, which expressed in another way is foundry standards and policies, is in the same category with steel casting prices. Through unin-

Improvements Needed

CONSUMERS of steel castings frequently frown upon the charge made for suitable pattern equipment. Patterns used by one foundry may be found unsuitable by another. Heads or gates on the equipment may have to be relocated to overcome certain defects. This involves a charge and may lead to a misunderstanding between the foundry and the customer. In the accompanying article pattern expense from the jobbing foundry point of view is discussed by W. J. Gilmore, vice president, Ohio Steel Foundry Co., Lima, O. Observations of policies operative in successful foundries in the industry and the merit of many theories that necessarily must be kept at the forefront are stressed by the author.

telligent treatment or total lack of treatment by the foundry salesmen, it becomes a competitive issue with the result that the foundry and the customer both suffer. The latter suffers unconsciously because due to his lack of knowledge of what is best in foundry practice, he fails to appreciate the merit of good pattern equipment and the numerous benefits that might accrue to him through the use of such equipment.

Too often the steel foundry salesman in the plainest sense is a price maker or a price meeter. He should be a trained foundryman, capable not only of dealing intelligently with purely foundry problems, but also able to sell patterns that are designed to fit the job in the foundry and not patterns that are designed solely with the thought of keeping the initial pattern cost down to the minimum amount.

Benefits that result for the buyer who intelligently co-operates with the progressive foundry in furnishing properly mounted patterns are: Lower cost of pattern up-keep, more uniform castings, and better deliveries. When castings are ordered in quantities from properly mounted patterns, samples are first prepared by the foundry. These samples are cut up to determine the location of any internal defects that may exist and a careful study is made to insure proper location of heads and gates on the pattern equipment to overcome existing defects. Final construction of the pattern is such that the heads and gates cannot be located otherwise by the foundry workers during the manufacturing process. Relocation of the heads and gates might result in new internal defects. The location of heads and gates to insure sound castings means fewer rejections during the machining operation and reduce the consequent loss to the buyer of the machining cost on the rejected castings.

Insures Quick Machining

The uniformity of castings from properly mounted patterns insures faster machining operations because of the uniform fit of the castings in the jigs used for machining them. Such castings also have less excess stock to be removed in the machining operations. Castings from a loose pattern are produced only in a limited quantity each day and their movement through the foundry for the various foundry operations consequently is slowed up. Castings from mounted patterns are produced at a rate that is considerably more rapid than loose pattern production and consequently they move through the foundry in larger lots and the final completion of the order is quickened as a result.

The important thing for foundry operators to recognize is that responsibility for the origin and nature of abuses and disrespect to what we are pleased to call steel foundry standards, is within the industry rather than without the industry. The abuses are recognized and admitted by the leaders, who permit the abuses to continue as competitive factors and with the disposition that in so far as correction is concerned, it is a matter about which individually they can do little or nothing. The shop management of many foundries for years has attempted to establish reform in the existing loose policies, but with only mediocre success. The executive management of foundries in the past has too frequently shown an indisposition to assist its shop management to abolish present loose standards and policies. The shop management's request for improvement of standards invariably has been considered as an alibi or excuse for high costs, poor work, and mediocre results in the foundry, instead of a sincere and intelligent request for the improvement of conditions and policies to the end that the industry as a whole will be really benefitted.

Operating Knowledge Helpful

Recommended improvements dealt with hereafter cannot be made operative unless there is in the sales department an individual who is thoroughly acquainted with foundry practice and fully recognizes the foundry's needs with respect to patterns. This individual must have the ability to read blue prints and visualize therefrom just what will be required in the way of sufficient patterns and core boxes, and what the peculiar requirements of the particular job may be in order to insure maximum efficiency in the foundry. If the sales organization does not have a man possessing these qualifications, the comments and recommendations of the foundry management should carry as much weight as the recommendations of a sales department man such as mentioned.

Ordinarily accepted practice, as it now exists in the steel foundry industry, makes no particular distinction in regard to the various kinds of pattern expense. The tendency seems to do whatever pattern work may be found necessary and charge to the customer as much of the expense as the customer will bear. There should be only two classes of pattern expense, namely: that which is the foundry's expense and that which is properly the customers' expense.

The only pattern expense that should be borne by the foundry is that for repairing patterns and core boxes damaged through foundry abuse, or replacing lost patterns and core boxes and parts. The making of match boards, the changing of gates improperly located on patterns supplied by the customer, the making of heads and gates on patterns not so equipped and supplied by the customer, the rehabilitation of patterns when such work is made necessary because of ordinary wear and tear, and other pattern expense of a like nature, are not true items of foundry expense but are items of expense that are properly chargeable to the customer, in the same manner as the cost of preparatory expense, special tools, and special jigs is borne by the machine shop customer either as a specific charge or by inclusion in the total cost of the work done. Reimbursement for pattern expense should likewise be secured by the foundry through making a specific charge for the work performed or seeing that ample provision for it is included in quoted prices on specific jobs.

The sales department is generally the point of contact between the buyer and the foundry, and upon this department rests the responsibility for advocating the idea of customer's pattern expense as treated here. It is a sound cost policy to make such items of pattern expense a charge against sales expense in those cases where the sales department cannot sell the idea to the customer.

The difference between what may be classed as desirable or undesirable pattern equipment, is now so universally known to intelligent foundrymen that concerted action should be taken to insist upon desirable pattern equipment for every order placed with the foundry; such equipment to be furnished at the customer's expense, thereby eliminating the matter of patterns as a competitive factor.

Supervision Is Recommended

It is desirable that the foundry supervise pattern construction for each job that is to be run in its plant. This makes the foundry responsible for the accuracy of such patterns. Patterns furnished by the customer, for which the foundry is not responsible, should be checked only upon the specific request of the customer and at the customer's expense. The checking of a pattern or a group of patterns, particularly if they are of intricate design, is often much more costly than the foundry management thinks.

Often patterns that may be called

conjunction patterns are furnished the foundry. By changing certain parts on these patterns it is possible to make from them castings of slightly different types or designs. In making the change, possibility of error is increased, the flow of production in the foundry is interrupted, and foundry cost as a whole is usually higher than it should be. This is poor economy. The saving effected in the initial cost of such patterns is in reality multiplied several times, and added to the foundry cost.

Objections Are Cited

Objections sometimes raised by customers against pattern charges are principally the following:

1. To the cost of repairing patterns and core boxes damaged through usage.
2. To the cost of construction of patterns and core boxes necessary to produce quality castings.
3. To the reconstruction of patterns and core boxes originally constructed without consulting the foundry concerning important features of construction.
4. To the recontsruction of patterns that will not draw properly.
5. To the reconstruction of patterns that cannot be fed properly.
6. To the cost of adequate pattern equipment for economical production and to meet required delivery.
7. To the cost of preparing core prints for patterns which are furnished the foundry on which stock cores are specified, and which from a foundry standpoint are not so constructed as to eliminate core shifts, or the shapes of the core prints do not fit standard cores specified.

Full realization of the importance of pattern expense cannot be effected without proper and adequate methods to record all items of expense that are true pattern department costs. Pattern estimates are not always accurate. It is desirable that such estimates be checked by securing competitive bids. In preparing estimates, whether for repairs or for new patterns, necessary information such as name of customer, pattern number, description, customer's order number, blue print number, etc., should be recorded. Requirements should also be fully recorded. These should show the number of patterns required, materials from which the pattern should be made, number of core boxes required and material from which the core boxes should be made, and the number of match boards or match plates required. If the work is performed in the foundry's pattern shop, the estimate should be checked by recording actual material cost and actual labor cost.

Overhead expense must not be overlooked. The more important items entering into overhead expense will be management expense, depreciation of equipment, cost of space occupied by the pattern shop, power, light, heat, a proper charge to provide a return on the investment represented by the pattern shop, taxes, insurance, and any other items of similar nature, a portion of which may be properly charged to the pattern shop. The pattern shop should be operated as a separate unit under the control of the foundry management and not as an auxiliary foundry department.

Briefly, the commonly accepted method of showing the cost of the pattern shop is to charge material and labor to a sub-classification on the cost sheet captioned "Pattern Expense." This is misleading, and the resultant cost per ton shown is roughly only about one-third of the actual cost of the pattern shop as determined when it functions as a separate unit.

With the present cost method just mentioned as being in common use, all items of overhead expense are borne by the entire foundry production, as they are not handled as a charge against the sales value of the output of the pattern shop. By using such a method, the cost of operation of the pattern shop is proportioned against all of the foundry's customers, instead of being properly proportioned to only those customers benefitting from the operation of the pattern shop.

Saving Is Afforded

Experience known to the author indicates savings ranging from $25,000 to $30,000 a year in the pattern department through intelligent treatment of pattern expense. This is no trivial matter. Without exaggerating, it can be said that even the small foundries can unknowingly lose from $50 to $300 a month through concessions on pattern expense. Regardless of the size or the financial worth of the foundry, the matter of pattern expense is a matter of real cost and justifies continuously the closest possibly scrutiny.

In referring to loose patterns it should not be overlooked that there are invariably many other things loose besides the pattern. Molding methods are loose and costs are high, wastage of metal is considerable, hand rapping is required with the frequent result that the casting is larger than it should be, which in turn results in an increased machining cost required to removed the excess metal. If loose, the pattern frequently warps and thereby affects the trueness of the castings which in turn further reacts on the ultimate cost of the product through an enhanced machining cost; or if the parts no not require machining, trouble will be experienced in assembling them because of the castings not being true to dimensions.

Benefits Are Tangible

Some of the benefits of proper equipment which will accrue to the customer are not visionary in any sense, but are tangible benefits which the foundry must identify for the customer. They are: better prices, better and more uniform cost of machining, finishing, and assembling the castings into the finished product, a more regular and uniform flow of production in the foundry with fewer shortages, less special chasing, and quicker completion of orders. A closer adherence to the customer's schedule of production in his own shop is, of course, the result of the uniform flow of foundry production. More uniform castings make fewer emergency shipments to replace imperfect castings.

Theoretically, the customer pays for all items of expense incurred in the foundry although this, of course, is not actually the case. In some instances the ultimate cost is borne by the foundry stockholders, and in other cases, instead of items of expense being properly allocated to the customer for whom the expense is incurred, it is averaged over the entire group of customers. It is more scientific and more equitable for the customer to recognize the fairness of satisfactory pattern equipment, which after the pattern is in production carries assurance of more uniform and dependable deliveries and castings more nearly true and uniform to pattern and of a higher quality.

The thoughts advanced in this paper are not original with the author. They are the result of the author's personal knowledge and observations of the policies operative in those foundries which are outstanding successes in the industry and which have most aggressively pursued the theories advanced. The merit of many of these theories has long been recognized by the active shop management of most foundries, but because of lack of determination on the part of the executive management, the theories have not been kept at the forefront and established as trade policies and customs that are necessary for the well-being of the industry.

The foundries' obligation to their

customers in the broadest sense, is to provide them with castings at the lowest possible ultimate cost, and it is their duty to educate the buyer to the proper method of determining casting cost. This should take in all factors of cost from the initial pattern cost to the cost of the completed casting ready for installation in the finished part in which it may be used. This goal, with which will come the renewed and greater confidence of the buyer, will not be reached until the executive managements apply themselves with determination to the thorough education of the members of their sales departments in order that they in turn may be of the broadest possible service to the customer.

Proposed standard symbols for heat and thermodynamics, mathematics and aeronautics have just been announced by the sectional committee on scientific and engineering symbols and abbreviations under the general direction of the American Engineering Standards committee. These three proposed standards are being distributed for criticism and comment. Suggestions and changes should be addressed to Preston S. Millar, Electrical Testing Laboratories, Eightieth and East End avenue, New York.

Duluth Plant Plans Big Expansion

A $3,000,000 expansion program pertaining mainly to coal dock and by-product coke facilities has been announced by the Zenith Furnace Co., Duluth, Minn. This is one of the largest industrial developments in that city since the Minnesota Steel Co. built rod and wire mills and other finishing capacity at its plant several years ago. One of the main purposes of the Zenith process plans is to increase its capacity for supplying gas to Duluth, Superior and adjacent districts.

A contract has been awarded to Whitney Bros. Co., Duluth, for rebuilding the present coal dock, which will increase its season's capacity from 600,000 tons to 1,000,000 tons. This includes filling in the outer end of the present dock and constructing 2000 lineal feet of round pile and reinforced concrete dock front, building 2000 lineal feet of pile and concrete bridge runways at the front of the dock, and 2000 feet of pile and concrete bridge runways at the rear of the dock. This work has been started, and a contract has been awarded to the Industrial Brownhoist Corp. for two 10-ton 375-foot span coal handling bridges.

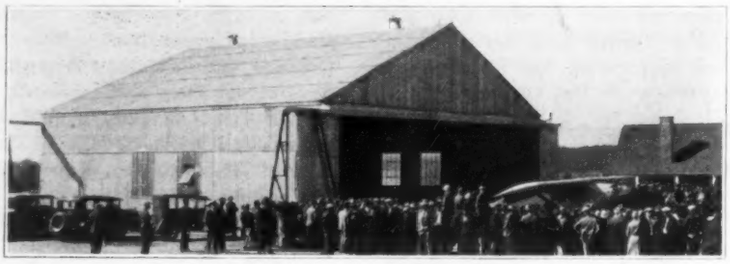
Will Enlarge Coke Works

The company's by-product coke plant facilities will be greatly enlarged, though specifications have not been announced. The present equipment consists of 65 Otto United coke ovens. with a net coke capacity of 150,000 tons annually. The company's blast furnace has capacity for 114,000 tons of pig iron annually. Coke and by-products in larger quantities will be supplied to a wide industrial area.

At a recent meeting of directors of the company C. O. Applehagen, Duluth, manager of the coal department, was elected a director, vice president and manager of sales. A. E. Bennett was elected treasurer. W. B. Castle continues as president. Members of the board include H. S. Pickands, Cleveland; C. W. Andrews, Chicago; W. P. Chinn, Seth Marshall, F. A. Brewer, C. A. Luster, C. O. Applehagen, W. B. Castle, of Duluth.

A portion of the Zenith Furnace Co.'s plant at Duluth, showing docks to be enlarged and improved, and site of new by-product coke plant

Steel Hangar Housed "Spirit of St. Louis"



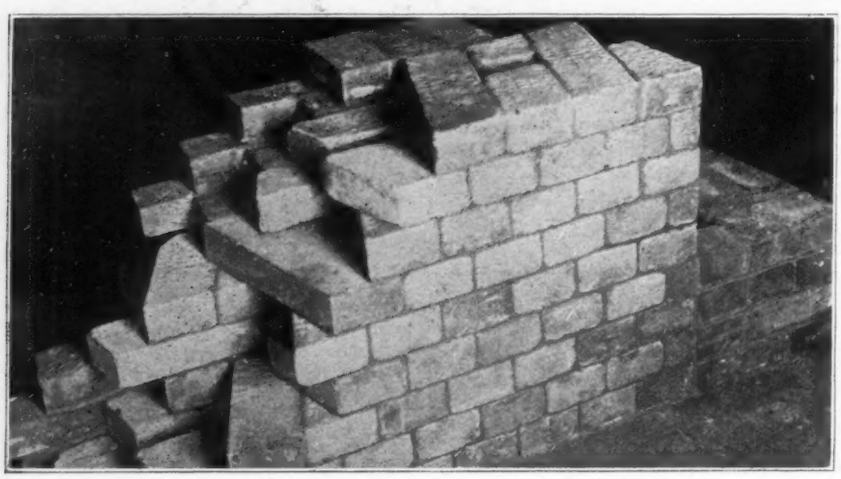
STEEL and speed were combined to afford suitable housing for the "Spirit of St. Louis" at Winston-Salem, N. C., when Colonel Lindbergh visited that city this fall. The city decided in August that a proper hangar for the plane should be provided at its field. A telephone order was placed with the Blaw-Knox Co., Pittsburgh, on Aug. 30 for the building. Anchor bolts were shipped a week later and within two weeks the complete structure was enroute. Erection was started Sept. 26 and completed Oct. 11, a crew of eight workmen doing the work.

Brick of Special Shape Affords Tight Joint

One of the most difficult problems of fire brick construction, in the opinion of many engineers, is the difficulty of making brick stay put under the stress and strain of actual working conditions. There is always the tendency for walls to loosen up and joints to open, resulting in heat losses, slag penetration and eventual disintegration. This problem of a stronger wall is said to have been solved by the development of a unique shaped refractory.

The brick are laid up on the bias, one overlapping and tying together three others in a self-locking construction which gives exceptionally tight joints and a wall of great strength. Owing to this peculiar construction and interlocking feature, walls laid of this type refractory do not loosen up, joints remain tight and the loss of heat and the penetration of slag is reduced to a minimum.

Although different in shape, the brick lay up as readily as the ordinary straight brick in any thickness of wall from 4½ to 27 inches or more, and are equally well adapted to large or small installations. They are particularly well suited for hollow wall construction, where a strong bond is of paramount importance. The new refractory is an exclusive product of the General Refractories Co., Philadelphia.



SPECIAL SHAPED BRICK LAID UP ON A BIAS TO GIVE A SELF-LOCKING CONSTRUCTION

Cutting by Gas Requires Good Supervision

(*Concluded from Page* 1423)

speed for that tip size and pressure. The result is that his work is even less profitable than that of operator No. 4.

Let us consider the work of all of these men from other angles. We have stated that simple tests could be conducted in the shop to determine the economy of the process, etc. The results in the table illustrates how the value of the men based on individual ideas and judgments can be determined. It also shows how a standard practice can be established for a particular grade of work by specifying tip sizes, styles and pressures. It shows the influence of speed on economical torch operation.

The reduction of work done to the basis of square inches cut per cubic foot of oxygen emphasizes the value of utilizing all the cutting power that exists in every foot of high-purity oxygen. Visible proof of cutting efficiency is exhibited in the appearance of the surface of every cut. This was referred to previously, but we will consider it now with reference to the results as shown in the table.

The table shows that the drag noticed in the case of operator No. 1 was 1⅛ inches as illustrated in Fig. 1, and ordinarily this would be considered as indicative of extremely economical cutting. We must, however, always take into consideration tip size and pressure in an analysis of this kind. The high speed, large tip size and low oxygen pressure would indicate that the pronounced drag was the result of dilution or contamination of the oxygen stream, to the point where cutting practically ceased. The drag in the case of operator No. 2, using a small tip, was indicative of economical cutting, the lines as shown in Fig. 2, being fine and regular, the top edge was sharp and the face perpendicular, denoting a narrow kerf with clear sharp cutting, affording only a slight opportunity for atmospheric dilution. It is interesting to note that this operator was by far the most valuable cutter from standpoint of cost ratio.

In an analysis of cutting results, we must bear in mind that as the cutting lines more nearly approach the vertical the cutting operation becomes more costly, for the reason that much unconsumed oxygen is passing out of the cut. This is emphatically borne out by the figures in the table.

The lowest possible operating cost can not be approached unless shop conditions are arranged so the men can make the best possible use of their time and keep the torches cutting practically continuously during the total working hours. The realization of this will mean that the work will be planned and laid out and instruction given in the requirements of the job so that each operator can proceed with his work with a thorough understanding of what is expected of him in the matter of production and quality.

Editorials

Sales Consciousness Is Big Need
Teach Employes Financial Sense

Faster Trains Add to Car Supply
Nonferrous Markets Gain Strength

Recording Sales Experience

CONSIDERING the rich background of romance in the field of salesmanship in the steel industry, one finds little in literature on the technic of selling steel. A dozen or more steelmakers have distinguished themselves by unusual success in obtaining signatures on the dotted line for large tonnages. On occasion a few of them have gone into world markets and sold the American product in the face of keen European competition. Others have been consistently successful in keeping their order books full of desirable business gleaned from a not always healthy domestic market.

For a long time the achievements of these extraordinary salesmen were accepted as evidences of the result of natural selling ability. That good salesmen "are born and not made" was an accepted theory in many quarters. The possibility of training a novice in the fine points of selling frequently was discounted. The development of steel salesmen in many companies was a matter of chance or accident. Certainly no definite procedure has gained current acceptance.

Perhaps one reason for this is that in general steel producers until recently have not been sales minded. Another contributing factor is that few of those qualified to teach the selling of steel have recorded their experience for the guidance of salesmen in training. Relatively few companies have taken the pains to put their junior sales force through a rigid course of schooling.

Fortunately the present tendency toward recognition of the importance of better selling methods promises to improve this condition. One of the evidences of this new appreciation of the seriousness of the problem is found in the series of articles starting on page 1415 of this issue. Inspired by the necessity of building up a literature on the selling of steel, a prominent executive in the industry has written a brief but comprehensive treatise on the fundamentals of selling.

It is to be hoped that this is but the beginning of a new selling consciousness. Perhaps the articles by "Steel Executive" will encourage other writers having the required background of experience to set down simple rules for the guidance of younger salesmen. The columns of IRON TRADE REVIEW are open to anyone who can contribute constructively to the knowledge of selling as adapted to steel and allied products. Certainly the industry will welcome additions to the meager literature on this subject.

Repairs Will Force Car Buying

AS FREIGHT car orders retreat farther from the 150,000 once considered the yearly normal, hope is strengthened that in the ensuing year the railroads will make good the deficiency. How frail this reed has been is evidenced by the decline from 144,425 cars placed in 1924 to 77,110 in 1925 to 60,575 in 1926. Thus far in 1927 the total of freight cars distributed is 46,445, with current inquiry exceeding 12,000. It is doubtful, however, whether all of the cars on inquiry will be placed, and 1927 seems slated to bring up the rear of this procession. At this time, when prognostications concerning 1928 business are commencing to be broadcast, the hope of a good car year is in the process of being transferred to the new year.

Meanwhile, the railroads have been transporting a record volume of freight. For the year to Nov. 19 they had loaded 47,441,242 cars, compared with 48,320,144 in the same period of 1926—the all-time high—and 46,600,612 in 1925. How reconcile expanding traffic and contracting equipment purchases?

The longer life of freight cars, due to the higher ratio of steel cars, is one clue. But apparently insufficient emphasis has been placed upon economies effected by speeding up the movement of freight and the reduction in bad-order cars. Since 1921 the average daily movement

of freight cars has been stepped up from 22.4 miles to 30 miles. This alone, according to one authority, is equivalent to adding 630,000 freight cars. The cut in bad-order equipment from 13 per cent in 1921 to 6 per cent has made available 160,000 more. These achievements have added practically 800,000 cars since 1921, contrasted with 611,207 actually bought.

In recent weeks freight loadings have dropped to the lowest levels in five years. At the same time, actual and prospective inquiry for new cars has grown to 15,000. Many view this increase as the seasonal bulge and believe a real upturn in buying cannot be expected until present equipment deteriorates. In this case a mounting bad-order percentage will be the herald.

Safeguard Employes' Investments

THE difference between employes buying stock in a corporation and speculating in the stock market in that stock has been made plain by officials of an important Ohio corporation. Fearing repetition of a previous distressing experience, when employes overstayed the market and lost heavily, these officials have posted a warning on the plant bulletin board, advising of the hazards involved in margin trading.

This is a departure in welfare work. The management has gone farther than its responsibility requires, in its effort to protect employes. Certainly the management should know whether a rise in its stock is justified and whether the advance is based upon fact or merely part of a general upward movement in securities. It is not difficult to see that the sense of thrift engendered by the sale of company stock to employes may easily breed a mild form of avariciousness. At any rate, the officials of the Ohio corporation have given their employes a real market tip.

Metals Reflect Export Demand

BUYING of nonferrous metals is larger than in many months, and chiefly for shipment within two months. Prices have responded accordingly, and while they still are far under the averages of the past few years, the recoveries have been substantial. In these price comparisons copper is an exception, as it now is selling at the highest price in a little over a year; yet at 14.00c a pound it is generally recognized among users as well as producers that the price remains under the average for a number of years.

The significance of strength in most of the metals is somewhat different from the better tone in iron and steel. The latter denote domestic markets, while copper and lead, which have been outstanding in strength, have had good export business lately. In fact, export sales of copper last month were the largest on record. This class of business does not make the strength any less real than if big domestic business affected the price, but many domestic users have been skeptical of the strength, because they have not realized the size of foreign demand.

The question has been raised whether any of the big buying in Europe might be due to a "war scare," but the shapes in which the bulk of the copper is being shipped indicate the copper is not intended for munitions.

What Our Readers Are Thinking

Foreign Fairs Offer Trade Opportunities

INADEQUATE interest in most of the European fairs on the part of American exporting firms, as indicated by the very limited participation of American products in some of these fairs, and their conspicuous absence from others, and especially by the lack of cooperation on the part of American concerns with their European distributors, warrants the assumption that the nature and scope of most of the European fairs are misunderstood, and that their value as trade promotion agencies is greatly underestimated by American firms interested in foreign markets.

As a matter of fact a number of the international fairs in the larger eastern European countries, as well as in the Balkans and the Near East, deserve serious consideration as avenues that offer wide opportunities for the popularization of American manufactures in outlying territories.

Of the international fairs created during the last several years of the post-war period and of special interest on account of their rapid development, there may be mentioned two in Poland—the Pozna (Posen) Fair and the Eastern Fair held annually at Lwow (Lemberg); the two Yugoslav fairs at Zagreb and Ljubljana; and the Saloniki Fair in Greece. All these are typical examples of the "errors of omission" on the part of American exporters with regard to foreign fairs.

The expenditures connected with the arrangement of exhibits and personal attendance at the fairs, which no doubt are a weighty factor for American exhibitors, can be reduced to a minimum by organizing collective exhibits. An American pavilion, established by the American commercial attache at the Prague (Czechoslovakia) Sample Fair two years ago as a collective exhibition, proved very successful; and there is hardly any reason why this example should not be emulated at other European fairs.

A calendar of fairs (No. 333-28), recently issued by the specialties division of the bureau of foreign and domestic commerce, giving concise information on a number of fairs, may be had by interested firms upon request.—S. K. KASHELEVSKY, *division of regional information, bureau of foreign and domestic commerce, in Commerce Reports.*

IRON TRADE REVIEW

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E. L. SHANER, Editor. J. D. PEASE, Advertising Director. F. F. LIGHT, Circulation Manager.

How Iron and Steel Products Are Pickled. Page 1418.

SUCCESSFUL salesmanship in the steel industry is certain to command more respect and reward as a result of the searching attention producers are giving this branch of their business. Steel companies are no longer satisfied with the volume of business that flows to them through routine channels; markets and methods are topics of daily discussion. A steel company executive has written a series of articles for IRON TRADE REVIEW on how to sell steel, beginning on page 1415. These articles will prove valuable to all those interested in the subject.

The Readers' Page

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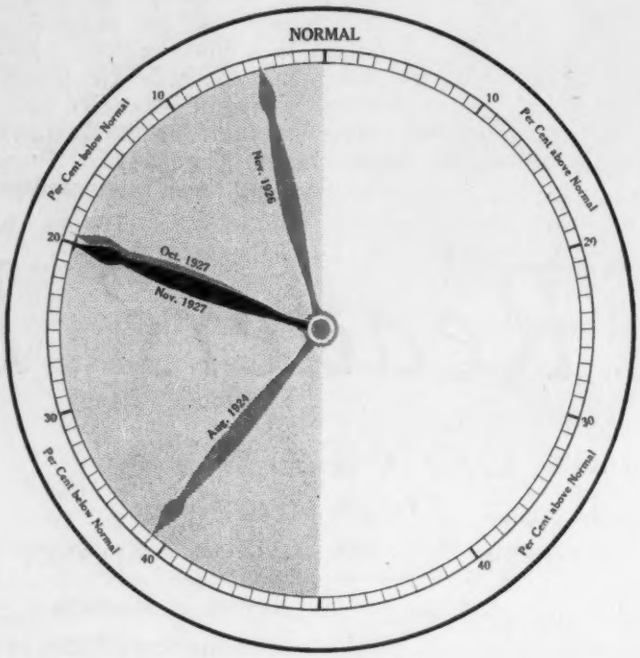
The Business Trend

Blast Furnace

The Dial represents the Blast Furnace Index of Business which is based upon a 40-year record of furnace activity. It is a barometer of general trade.



Business Dial

When 60 per cent of all the country's furnaces are in blast business conditions are normal. The Index is now lower than the normal point on the dial.

Evidence of Recovery Accumulates

By JOHN W. HILL, Financial Editor

EVIDENCE is beginning to accumulate that industry is turning the corner of recovery. The belated appearance of the new Ford car, indications of a buying movement in pig iron, firmer price tendencies in iron and steel markets, and improved purchasing activities of railroads, are all of favorable significance for the future course of business.

THE most important of these events was the introduction of the new Ford to a breathlessly expectant and a curiosity consumed public. The suspension of Ford production since last spring has been at least one leading factor in the recently prevailing period of slackness in certain lines of industry. This was true because the Ford enterprises represent roughly one-half of the automobile industry.

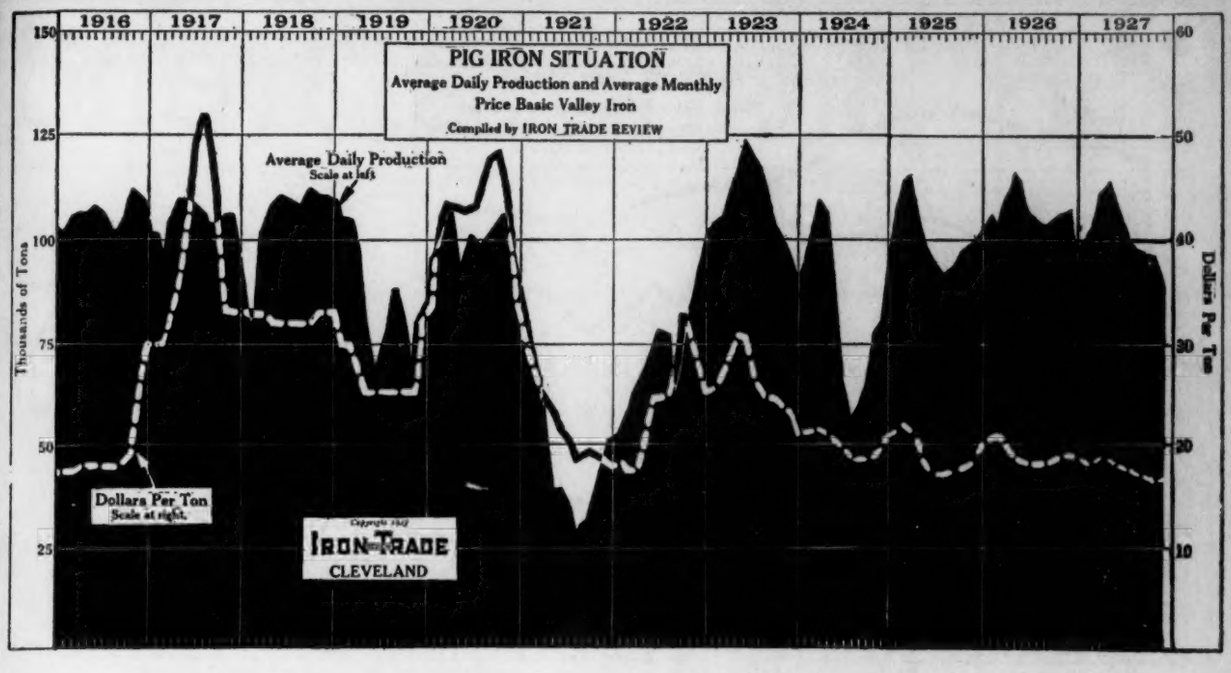
IF FORD'S withdrawal from the market hurt business, his return will be stimulating. The uncertainty which his delay cast over the motor trade has now been removed. Prospective buyers waiting to see what Ford was to bring out may now make their choice. The most favorable factor in the motor car trade is the fact that Ford's temporary retirement has created an underproduction of cars.

THIS is in direct contrast with the conditions of overproduction existing just 12 months ago. As shown by the record of employment in the Detroit district, automobile plants' payrolls now are steadily gaining. One year ago they were as steadily declining preparatory to a drastic slump in December to correct overproduction.

THE Blast Furnace Business Dial is beginning to reflect the check in industrial recession. In November there was a decline of only one furnace in blast. Blast furnace activity was 20 per cent below normal at the close of the month compared with 19.7 per cent below normal at the close of October. The present pig iron buying activity forecasts an upward turn of blast furnaces in operation in December.

FROM all present signs industry will move into 1928 with a rising curve. The prospective reduction in corporation tax from 13½ per cent to 11½ per cent will be a constructive event. An offsetting unfavorable influence upon business likely will be the presidential campaign. This, as is usually the case, may be expected to create sufficient uncertainty in the national mind to have some degree of unsettling effect. How much remains to be seen.

The Business Trend

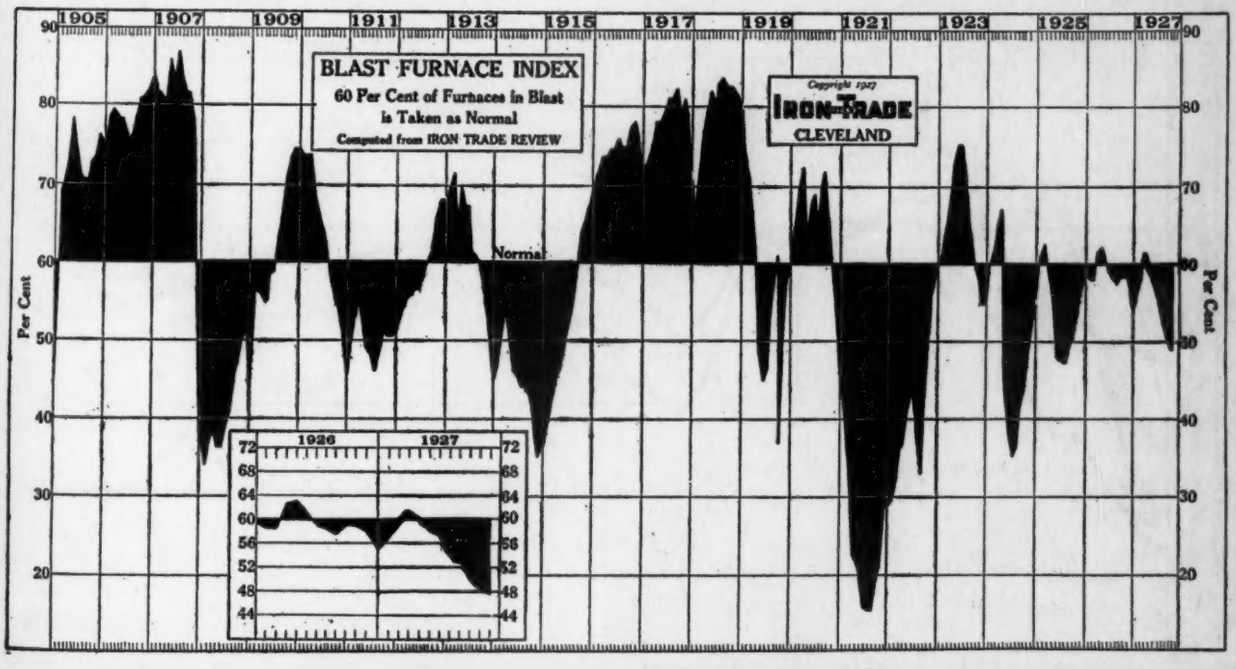

PIG IRON SITUATION
Average Daily Production and Average Monthly Price Basic Valley Iron
Compiled by IRON TRADE REVIEW
Average Daily Production
Scale at left
Dollars Per Ton
Scale at right.
IRON TRADE
CLEVELAND
Thousands of Tons
Dollars Per Ton
1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927

Pig Iron Situation

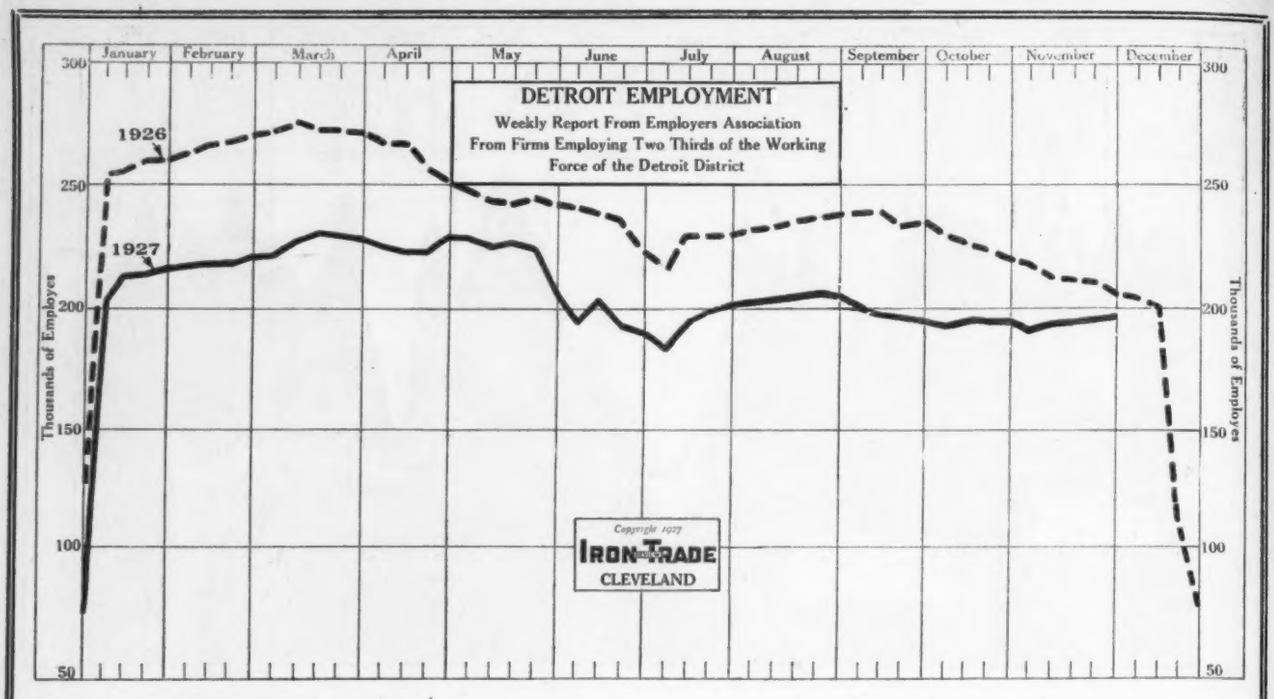
GROWING evidence of the development of a pig iron buying movement forecasts that a turn in the production index of pig iron is near at hand. November brought a continuation of the decline which has been in evidence since May. The daily average output for the month was 88,619 tons compared with 90,710 tons in October and 107,933 tons in November, 1926. The November rate was the lowest recorded for any month since August, 1925. The 11 months' output was 33,587,610 tons against 36,011,766 tons in the like period of 1926.

Blast Furnace Index

AT THE end of November, 173 blast furnaces were active compared with 174 one month before. This was a net decline of only one furnace compared with a decline of seven furnaces in October and of eight furnaces in September. There are now 361 blast furnaces available for use in the country and at the end of November 47.9 per cent of these was active compared with 48.6 one month before and a theoretical normal of 60 per cent. The slowing down of the decline and better activity for the pig iron market indicates an upturn shortly.


BLAST FURNACE INDEX
60 Per Cent of Furnaces in Blast is Taken as Normal
Computed from IRON TRADE REVIEW
IRON TRADE
CLEVELAND
Normal
Per Cent
1905 1907 1909 1911 1913 1915 1917 1919 1921 1923 1925 1927
1926 1927

The Business Trend

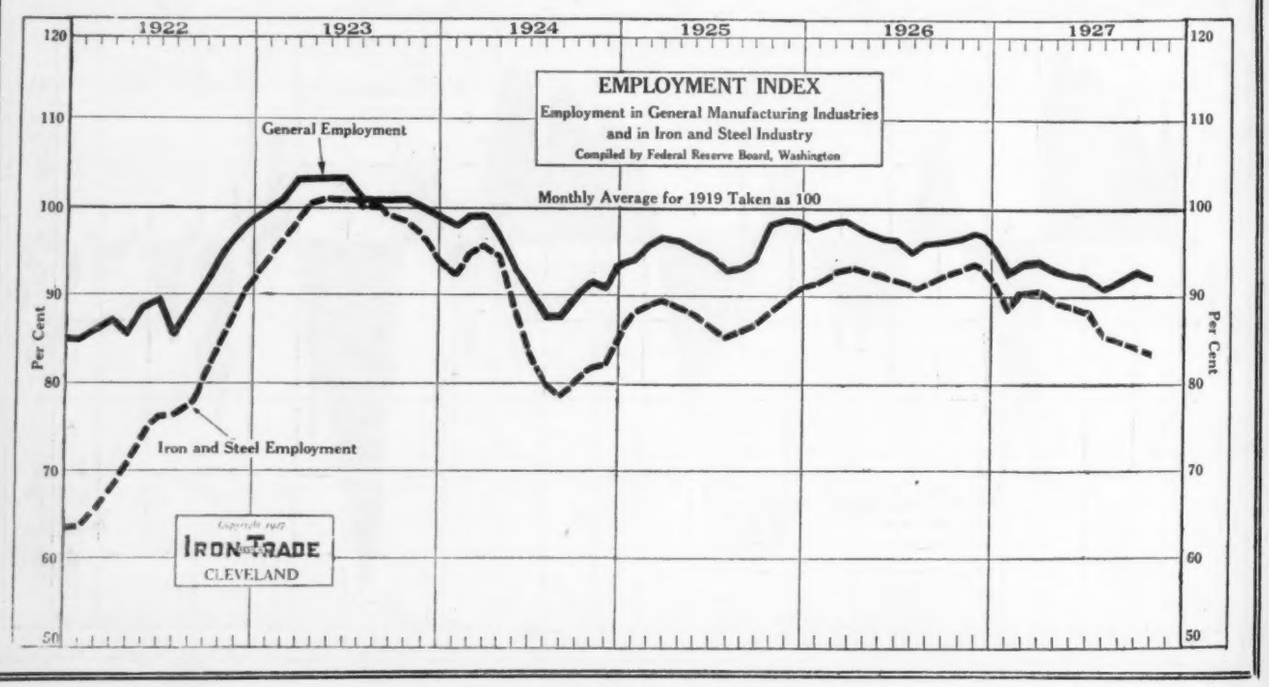


Detroit Employment

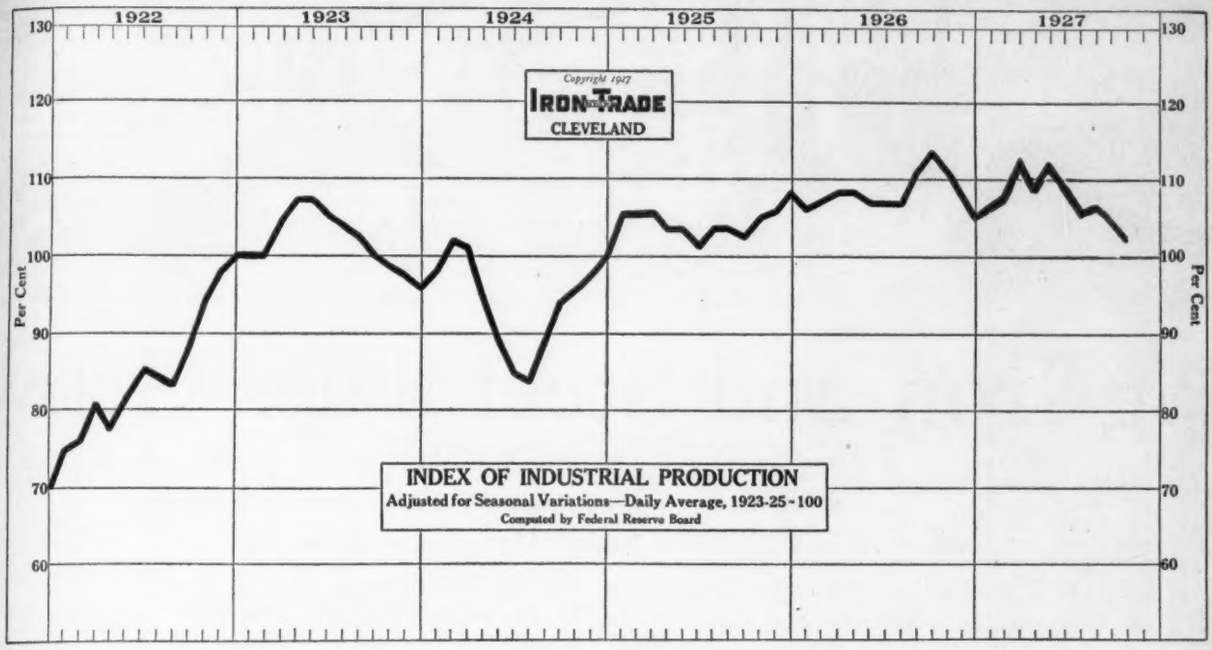
ONE of the most interesting and significant of all industrial indicators at the moment is that showing the trend of employment in the Detroit district. Recently the curve has been rising and this is in sharp contrast with the declining tendency noted one year before. The increase is almost entirely due to the gradually expanding operations incident to the production of the new Ford model. There is no likelihood of a repetition of last year's sharp drop in employment in the Detroit district in December, it is believed.

Employment Index

OCTOBER brought declines in employment in general industries as well as in the iron and steel industry. This was a reflection of the sluggish movement in industrial activities this fall. Improvement is now being witnessed in important lines such as iron and steel, automobiles and railroad equipment and gains in employment indexes of those industries should appear shortly. The index of total employment for October stood at 91.7 compared with 91.9 one month before. Iron and steel employment stood at 84 compared with 84.7 one month before.



The Business Trend

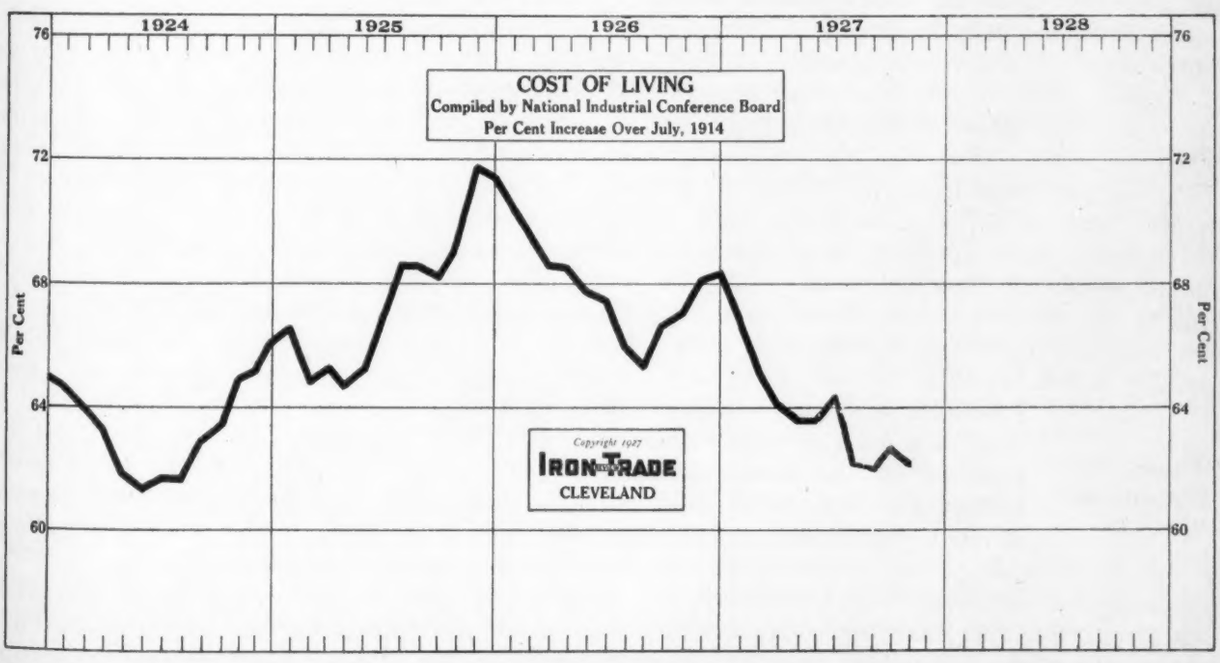


Production Index

CONTRARY to the usual seasonal tendency, production of manufacturers declined in October. The October volume of minerals remained in practically the same volume as in September. In October and November activity of iron and steel mills and of automobile plants was smaller than at any previous period of the year. There were also decreases in October in cotton consumption and in the production of building materials, crude petroleum and boots and shoes. The index stood at 102.7.

Cost of Living

THE cost of living index compiled by the National Industrial Conference board showed a slight seasonal rise in October. The index number now stands 63.7 per cent over the 1914 level compared with 62.8 per cent over 1914 in September. However, the downward trend which has been apparent since the end of 1925 was still maintained, for the figures in October showed a recession of 2.1 per cent from the same month in 1926. Gains were noted for food, for fuel and light. Shelter and clothing dropped.



Pig Iron and Steel Sales Grow

Increasing Demand, Especially for Pig Iron, Keeps Market Buoyant Despite Low Production — November Steel Ingot Output Off — Car Inquiry Expands — Sheet Prices Variable — French Underbid on Cast Pipe

MOUNTING interest of pig iron consumers in their first quarter supplies and moderate forward activity in many finished steel lines continue optimism dominant in the iron and steel market. Pig iron sales the past week totaled well over 100,000 tons and inquiry is expanding. Steel buyers as well as producers see increasing promise in the coming quarter, and determination of first quarter prices is a stimulus to sales.

The market, however, retains its two-sided nature. Order books are lengthening, almost exclusively for first quarter and first half delivery. Consumption, in the meantime, remains low and users are sharply restricting receipts in view of approaching inventory-taking. This condition is reflected in steel ingot production, which in November declined to the lowest point in 28 months, and December thus far shows little change.

The November daily ingot rate of 119,299 gross tons is a drop of 6 per cent from the 126,500 tons of October and 15 per cent from the 142,529 tons of last November. It was the poorest November since 1921. The month's total output at 3,101,764 tons compares with 3,289,013 tons in October and 3,705,744 tons a year ago. The eleven-month total for 1927 is 39,890,571 tons, against 43,469,439 tons last year. Only 73.7 per cent of the country's raw steelmaking capacity was engaged in November, compared with 77.9 per cent in October.

Prices Not Established

Producers of plates, shapes and bars are booking first quarter business on the basis of 1.80c, Pittsburgh, and 1.90c, Chicago. Current shipments almost entirely are invoiced at prices governing before the mid-November advance. The trade continues to look for another rise this month fully to establish present quotations. Whether low-priced tonnage not specified out by Dec. 31 is canceled remains to be seen. Chicago presents the most active market, with nearly 55,000 tons of plates and shapes on inquiry.

Iron Orders Still Heavy

Ohio and Indiana foundries have contributed heavily to the 60,000 tons of pig iron booked by Cleveland furnace interests. Sales at St. Louis, approximating 25,000 tons, include a tonnage of basic iron for a local steelworks. A Pittsburgh user is closing on 12,000 tons of bessemer and considerable gray forge; on the bessemer it has developed $17.50 and $17.75, against the recent quotation of $18. One-third of the Chicago district's first quarter needs, or nearly 150,000 tons, has been closed quietly. Silicon differentials have been waived in New England.

Negotiations for first quarter beehive coke reveal producers quoting $3, users seeking a wage clause which would automatically cut this level to $2.65, and producers countering with a minimum of $2.85 or $2.90. Thus far little forward business has been booked. Meanwhile, spot sales of distress furnace coke are reported as low as $2.50. Foundry coke is weaker, at $3.50 to $3.75. By-product coke prices in many districts are being extended into the first quarter.

Push Sheet Prices Up

Sheet prices continue variable. Some independents are asking 2.10c, Pittsburgh, for blue annealed, 2.90c for black and 3.75c for galvanized for first quarter. The leading maker, without formal announcement, is taking some business at current prices running into first quarter delivery. Buyers can still do 2.75c to 2.80c in black and 3.60c to 3.65c in galvanized without difficulty. Pittsburgh reports good orders from all users save automotive and

The Market Section

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Dec. 7, 1927	Nov., 1927	Spet., 1927	Dec., 1926
PIG IRON				
Bessemer, valley, del., Pittsburgh	$19.26	19.76	19.86	21.86
Basic, valley	17.00	17.00	17.15	18.80
Basic, eastern del., eastern Pa.	19.50	19.50	19.75	22.25
*No. 2 foundry, del., Pittsburgh	19.01	19.26	19.26	20.86
No. 2 foundry, Chicago	18.50	18.50	19.50	21.00
*Southern No. 2, Birmingham	16.00	16.50	17.25	20.00
*Southern Ohio, No. 2 Ironton	20.00	19.00	19.00	20.00
**No. 2X, Virginia furnace	21.25	21.25	21.50	23.00
**No. 2X, eastern, del. Phila.	20.26	20.51	21.01	23.46
Malleable, valley	17.50	17.50	17.50	19.30
Malleable, Chicago	18.50	18.50	19.50	21.00
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
Gray forge, val., del., Pittsburgh	18.51	18.76	18.76	20.56
Ferromanganese, del., Pittsburgh	104.79	94.79	94.79	104.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.50	2.80	2.85	3.65
Connellsville, foundry, ovens	3.50	3.75	4.00	4.70
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	34.00	34.00	33.90	36.00
Sheet bars, open-hearth, Pittsburgh	34.00	34.00	33.90	36.00
Billets, open-hearth, Pittsburgh	33.00	33.00	33.00	35.00
Wire rods, Pittsburgh	40.00	41.00	43.00	45.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.80	1.75	1.80	2.00
Steel bars, Chicago	1.90	1.85	1.85	2.10
Steel bars, Philadelphia	2.12	2.07	2.07	2.32
Iron bars, Philadelphia	2.07	2.07	2.07	2.22
Iron bars, Chicago	1.90	1.85	2.00	2.00
Shapes, Pittsburgh	1.80	1.75	1.80	2.00
Shapes, Philadelphia	2.12	2.07	2.02	2.22
Shapes, Chicago	1.90	1.85	1.85	2.10
Tank plates, Pittsburgh	1.80	1.75	1.80	1.90
Tank plates, Philadelphia	2.12	2.07	2.07	2.22
Tank plates, Chicago	1.90	1.85	1.85	2.10
Sheets, black, No. 24, Pittsburgh	2.75	2.80	3.00	3.00
Sheets, blue anl., No. 10, Pittsburgh	2.10	2.10	2.25	2.30
Sheets, gal., No. 24, Pittsburgh	3.60	3.70	3.85	3.90
Sheets, black, No. 24 Chicago	2.95	3.00	3.15	3.25
Sheets, blue anl., No. 10, Chicago	2.30	2.30	2.40	2.55
Sheets, galvanized, No. 24, Chicago	3.80	3.85	4.00	4.10
Wire nails, Pittsburgh	2.45	2.50	2.55	2.65
Wire nails, Chicago	2.55	2.55	2.60	2.70
Tin plate per base box, Pittsburgh	5.25	5.30	5.50	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	14.50	14.20	15.00	17.00
Heavy melting steel, eastern Pa.	14.00	14.00	14.00	15.70
Heavy melting steel, Chicago	11.75	11.50	12.20	13.00
No. 1 wrought, eastern Pa.	15.75	15.75	15.75	17.00
No. 1 wrought, Chicago	11.25	11.25	12.70	13.75
Rails for rolling, Chicago	13.75	13.95	15.20	16.30

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (December 7,) 1927	$35.10
Last week (November 30, 1927)	35.17
One month ago (November, 1927)	35.35
Three months ago (September, 1927)	36.18
One year ago (December, 1926)	38.22
Ten years ago (December, 1917)	56.68
Fourteen years ago (December, 1913)	23.29

freight car builders. Sales at Chicago have been sufficient to raise production to 80 per cent.

With the Southern Railway inquiring for 2400 freight cars and the Baltimore & Ohio a prospective buyer of 4000, active and probable car inquiry stands at 17,900, as large as at any time this year. Sixty thousand tons of rails has been placed at Chicago and 100,000 tons is pending there. Southern Pacific is reported closing on 75,575 tons.

Ford and General Motors subsidiaries are expected to be heavy buyers in a few days of sheets and strip for delivery beginning in January.

French cast iron pipe is low on a 10,000-ton job at Detroit at $35.05, delivered, or $2.70 under the lowest domestic bid.

Tin plate is now quoted at $5.25 per base box for first half, in line with recent concessions from the nominal quotation of $5.50.

The IRON TRADE REVIEW composite of fourteen leading iron and steel products continues to decline, due to adjustments in tin plate and pig iron. This week it stands at $35.10, compared with $35.17 a week ago and $35.51 a month ago.

Late News Flashes

Wheeling District Operations Are Improved

Steubenville, O., Dec. 6.—The 10-inch mill at the Mingo works of the Carnegie Steel Co. has resumed. The hot mills of the Follansbee Bros. Co. at Toronto are on, and all departments except a few finishing ones are operating. Both the Weirton Steel Co. and Wheeling Steel Corp. have added men this week.

South Chicago Stack Is Lighted

Chicago, Dec. 6.—Blowing in of another steelworks blast furnace at South Chicago by the leading interest places 21 of the 36 steelworks stacks in the district in operation. The leading interest now has 13 of its 27 furnaces active.

Valley Ingot Rate Is Down

Youngstown, O., Dec. 6.—Steel ingot production has slipped another notch, to 47 per cent, but mill managers hope to begin to recover recently lost ground by the middle of the month. Strip and tin plate capacity is 70 per cent occupied, unchanged from last week.

A. S. M. E. Names Officers for 1928

New York, Dec. 6.—With an unusually heavy registration, the American Society of Mechanical Engineers opened its annual meeting here today. Newly elected officers are: President, Alex Dow, president, Detroit Edison Co., Detroit; vice presidents, John Lawrence, vice president, engineering manager and director, Thomas E. Murray Inc., New York; E. A. Muller, president, treasurer and general manager, King Machine Tool Co., Cincinnati; Newell Sanders, Newell Sanders Plow Co., Chattanooga, Tenn., and Paul Wright, Paul Wright & Co., Birmingham, Ala.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	33.00
Youngstown	33.00
Cleveland	33.00
Philadelphia	38.30 to 39.30
Chicago	33.00
Forging, Pittsburgh	39.00
Forging, Philadelphia	43.30 to 44.30

SHEET BARS

Pitts., Young., and Cleve.	$34.00

SLABS

Pitts., Young., and Cleve.	$33.00

WIRE RODS

Pittsburgh	40.00 to 42.00
Cleveland	40.00
Chicago	42.00 to 43.00

Standard extras, $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

All grades, Pittsburgh	1.80c

Standard Structural Shapes

Pittsburgh	1.80c
Philadelphia	2.07c to 2.14c
New York	2.09c to 2.14c
Chicago	1.90c
Cleveland	1.99c
Birmingham	1.95c to 2.05c
Pacific coast, c.i.f.	2.40c

Steel Plates

Pittsburgh	1.80c
Philadelphia	2.07c to 2.12c
New York	2.09c to 2.14c
Chicago	1.90c
Cleveland	1.99c
Birmingham	1.95c to 2.05c
Pacific coast, c.i.f.	2.40c

Iron and Steel Bars

Pittsburgh, soft steel	1.80c
Pittsburgh, cold finishing	1.95c
Pittsburgh, forging quality	1.95c
Philadelphia, soft steel	2.07c to 2.12c
New York, soft steel	2.09c to 2.14c
Chicago, soft steel	1.90c
Cleveland, soft steel, mill	1.80c
Cleveland, soft steel, del.	1.82½c and 1.99c
Birmingham, soft steel	1.95c to 2.05c
San Francisco, soft steel	2.35c
Pittsburgh, refined iron	2.75c to 4.25c
Pittsburgh, reinforcing billet	1.80c to 1.90c
Chicago, reinforcing billet	2.20c to 2.55c
Chicago, reinforc. rail steel	1.80c to 1.85c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	1.80c to 1.85c
Mill, rail steel	1.65c to 1.75c
Philadelphia, common iron	2.07c to 2.22c
New York, common iron	2.09c to 2.24c
Chicago, common iron	1.90c

Hoops, Bands, Strips

Hoops, Pitts., 6 in. and under	2.10c to 2.30c
Bands, Pitts., 6 in. and under	2.10c to 2.30c
Bands, Pittsburgh, over 6 in.	1.90c to 2.00c
Hot rolled strip, Pitts., stamping quality, over 6 in.	1.85c to 1.90c
Hot rolled strip steel, Chicago	2.10c to 2.40c
Bands, Chicago, under 6-in.	2.30c to 2.40c
Bands, Chicago, 6 in. and over	2.10c to 2.20c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier base, Pittsburgh, Cleveland (less than 3 tons)	3.00c to 3.15c
Worcester, Mass.	3.15c to 3.40c
Stripsheets, with blue annealed extras, 12 in. and wider, Pittsburgh	2.15c to 2.25c

Cold Finished Steel

Cold finished steel bars, drawn or rolled, Pitts., Chi., c.l.	2.10c to 2.20c
Steel shafting, Pittsburgh, Chicago	2.30c
Cold finished steel bars, Cleve.	2.10c to 2.25c

Chain, Piling, Cut Nails

Cut nails, c.l., f.o.b. mills	2.80c
Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.20c to 2.25c

Alloy Steel

Hot Rolled

F.o.b. Pittsburgh or Chicago

To Tonnage Users in Auto. Industry

S.A.E. Series Number	100 lbs. Bars
2100 (*½ per cent Ni. 0.10 to 0.20 per cent C)	$2.90 to 3.00
2300 (3½ per cent nickel)	4.00 to 4.10
2500 (5 per cent nickel)	5.00 to 5.10
3100 (Nickel chromium)	3.00 to 3.10
3200 (Nickel chromium)	4.50 to 4.75
4100 (Chromium molybdenum)	3.05 to 3.15
4100 (Cr. Mo. 0.25-0.40)	3.90 to 4.05
4615 (Ni. 1.50%; Mo. 0.10-0.20)	4.25 to 4.50
5100 (Chromium steel)	3.10 to 3.20
6100 (Cr. V., forging)	4.00 to 4.10
6100 (Cr. V., spring)	3.60 to 3.80
9200 (Silico Mang., spring steel)	3.00 to 3.20
9250 (Silico Mang., spring steel)	3.00 to 3.10
Ni. Cr. V., (Ni. 1½%, Cr. 1% V. 0.15%)	4.00 to 4.10

*Mill number not formally accepted by S. A. E.

Hot rolled alloy billets 4 x 4-inch and over take the same prices per gross tons as same specification of alloy bars per net ton. Sizes from 4 x 4-inch down to 2½ x 2½-inch take same basis plus $5 a ton extra. Billets smaller than 2½ x 2½-inch take bar price on net ton basis.

Cold Rolled

Cold rolled alloy steels take 1c a pound extra over hot rolled when mean carbon is 0.30 or under. When the carbon is above 0.30 the extra for cold rolled is 1.75c, including annealing.

Sheets

SHEET MILL BLACK

No. 24, Pittsburgh base	2.75c to 2.90c
No. 24, Philadelphia, delivered	3.07c to 3.17c
No. 24, Gary, Indiana Harbor	2.90c
No. 24, Chicago, delivered	2.95c
No. 24, Birmingham, base	3.05c

TIN MILL, BLACK

No. 28, Pittsburgh	2.90c
No. 28 Gary base	3.00c

GALVANIZED

No. 24, Pittsburgh base	3.60c to 3.75c
No. 24, Philadelphia delivered	3.92c to 4.07c
No. 24, Gary, Indiana Harbor	3.75c to 3.80c
No. 24, Chicago, delivered	3.80c to 3.85c
No. 24, Brimingham, base	3.90c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.10c to 2.15c
No. 10, Philadelphia, delivered	2.42c to 2.47c
No. 10, Gary, Indiana Harbor	2.25c
No. 10, Chicago, delivered	2.30c
No. 10, Birmingham base	2.30c

AUTOMOBILE

No. 28 Pittsburgh, base	4.00c to 4.15c

IRON

No. 10, Pitts., blue ann., c.l.	2.90c
No. 24, Pitts., box annealed, 1-pass cold rolled, carload	3.85c
No. 24, Pitts., gal., c.l.	4.85c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.25

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.20c

*Prices subject to quantity differentials.

Wire Products

To Jobbers in Carloads

Dealers 5 cents per 100 pounds extra

F.O.B. Cleveland and Pittsburgh base

Bright plain wire, No. 9 gage	2.35c to 2.40c
Annealed fence wire	2.50c to 2.55c
Galvanized wire, No. 9 gage	2.95c to 3.00c
Barbed wire, painted	2.95c to 3.00c
Barbed wire, galvanized	3.20c to 3.25c
	Per 100 lbs.
Wire nails	$2.45 to 2.55
Galvanized nails	4.45c to 4.50c
Polished staples	2.90c to 3.00c
Galvanized staples	3.15c to 3.25c
Coated nails, 100 lb. kegs, subject to Sept. 1, 1926, extra base	2.45c to 2.55c
Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relay, rails, Pitts. 60 to 70 lb.	25.00 to 27.00
Light rails, 25 to 45, mills	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.70c to 2.80c
Spikes, small railroad, 7-16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.10c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts. stand	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	2.25c

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less, Chicago del., 2½ points less

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled 3¼ to 3½-inch	46 off

Further discounts of seven 5 per cents for carloads or six 5 per cents for less-carload on lap welded steel. On seamless hot rolled several more 5 per cents, and on charcoal two 10 per cents to two 10 and one 5 per cents.

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Six-inch and over, Birming'm	$29.00 to 30.00
Four-inch, Birmingham	33.00 to 34.00
Four-inch, Chicago	38.60 to 42.20
Six-inch to 24-inch, Chicago	34.60 to 38.20
Four-inch, New York	40.25 to 41.60
Six-inch and over, New York	37.25 to 38.25
Standard fittings, Bir. base	$100.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B

Bolts and Nuts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Eagle list	70 off

MACHINE BOLTS

All sizes, cut thread	70 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Lag screws	70 off
Plow bolts, Nos. 1-2-3-7 heads	70 off
Tap bolts	70 off
Blank bolts	70 off
Stud bolts without nuts	70 off

Stove bolts, 80-10-5 off in packages; 80-10-5 with 2½ off in bulk.

Tire bolts	60-5 off

NUTS

Semifinished	70 off

HEXAGON CAP SCREWS

Milled	80-10-10 off
Upset 1-in. diam. and smaller	85-5 off

SQUARE HEAD SET SCREWS

Milled	80-10 off
Upset, 1-in. diam. and smaller	80-10-10 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.75c to 3.00c
Structural rivets, c.l., Chicago	2.85c to 3.10c
**Rivets, 7/16-inch and smaller, Pittsburgh, Cleveland and Chicago	70 and 10 to 70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought, c.l., Chicago dist.	$6.70 to 6.90 off
Wrought, c.l., Pitts. dist.	6.75 off
Lock washers (dealers')	85-5 off
Lock washers (consumers)	85 off

Pig Iron

Sales Mount—Weeks Bookings Believed to be Around 100,000 Tons—Large Bessemer Inquiry Brings Lower Price

INTEREST in the pig iron market continues to expand. Furnace interests represented at Cleveland report sales during the past week aggregating 60,000 tons. Bookings at St. Louis added another 25,000 tons. At Chicago considerable tonnage has been closed quietly for first quarter, estimated at one-third of the requirements of melters buying in that market, for that period. Ohio and Indiana melters have been supplying many orders to lake furnaces, and these makers also report an increase in the shipping rate. One merchant interest Monday had in addition to its sales, inquiries amounting to 20,000 tons, The A. M. Byers Co. is about to close for 12,000 tons of bessemer for Warren, O., and large tonnages of gray forge for Girard, O., and Pittsburgh.

PITTSBURGH, Dec. 6.—The feature of the pig iron market is an inquiry from the A. M. Byers Co. involving up to 12,000 tons of bessemer iron for its Warren, O., plant, the largest inquiry for bessemer issued in a long time. This company also wants a large tonnage of gray forge iron for its Pittsburgh and Girard plants, all for first quarter. It is understood contracts will be closed today. On bessemer iron $17.50 and $17.75 were developed, although some interests claim they will not quote less than $18. The latter figure was applied to single carload sales this week. The Duquesne Steel Foundry Co. purchased a limited tonnage of bessemer iron from a steelworks interest on a reciprocal basis, paying less than $18, furnace, having the same freight rate to Pittsburgh as from the valley. Basic deals have been covered quietly, and the nominal price still is $17, valley. A few interests have booked some first quarter foundry iron at $17.50, base, valley, restoring full silicon differentials. Some small lots, all under 100 tons, of low phosphorus iron were sold at $27, valley.

The average price of basic iron in November as compiled by W. P. Snyder & Co. was $17, the same as in October. The average for bessemer in November was $17.875, compared with $18 in October.

Boston, Dec. 6.—Pig iron shows little change. Not more than 2000 tons figured in the past week. Buffalo and eastern furnaces are waiving differentials. It is possible to buy Buffalo No. 2 plain, No. 2X and No. 1X at $17, furnace. Furnaces in that district, contrary to reports, are not going below $17. The Mystic Iron Works continues firm at $19 to $21, furnace, and waiving differentials. It is reported the Troy stack will blow in next April, and it is trying to build up a backlog. General Electric Co. wants 500 tons of No. 1X for Lynn; 300 tons for Everett and 600 tons for Pittsfield.

New York, Dec. 6.—Pig iron business here reflects mainly a continuance of hand-to-mouth buying. Inquiries of the General Electric Co. and the A. P. Smith Mfg. Co., the former for 1400 to 1500 tons of high silicon iron for its Lynn, Everett and Pittsfield plants, and the latter for 600 tons of foundry iron for Bloomfield, N. J., are the most notable for first quarter. Other first quarter demand here comes from small users. Several important melters have placed small lots the past week for immediate shipment. Sales of Buffalo foundry have ranged from $16 to $17, base, Buffalo. There is a rather firm disposition at present to hold to $17 as minimum. Eastern Pennsylvania foundry iron continues $19 to $19.50, base furnace. Indian and Dutch foundry iron continues to sell at $21.50 to $22, base, duty paid tidewater, in small lots. Several hundred tons of English low phosphorus iron has been sold at around $23.50, duty paid, tidewater.

Buffalo, Dec. 6.—New inquiry for pig iron totals close to 5000 tons. The Buffalo Foundry & Machine Co. wants 1000 tons of foundry. Buffalo furnaces are bidding on 1400 tons for the General Electric Co.'s eastern plants. Increased firmness in all foundry and malleable quotations is reported, the former being offered at $17, minimum, and the latter at $17.50, base, Buffalo. Basic is said to have been offered under $17 in the East.

Cleveland, Dec. 6.—From 50,000 to 60,000 tons of pig iron was booked the past week by furnace interests represented in Cleveland. Figures reported by leading makers indicate the higher total is nearer correct. Sales have been more active than in any preceding period since spring. Except for the Standard Sanitary Mfg. Co.'s purchases as reported last week, individual orders are comparatively small, ranging from 500 tons up to a few of 2000 tons and 3000 tons. Practically all orders are for first quarter, some makers refusing to quote present prices on inquiries for first half. Inquiries before a leading maker Tuesday totaled about 20,000 tons. Inquiries and orders are coming from northern and southern Ohio, Indiana and Michigan. Shipping specifications on present contracts are better, indicating a higher melt. The market is stronger, with $18, base, Cleveland for local delivery still ruling. In outside districts $16.75, base, Cleveland furnace, represents the present minimum in southern Ohio. The price in Michigan is $17.50, base, Detroit. Jackson county makers of silveries and bessemer ferrosilicon irons have reduced prices $2 on all grades, previously having taken some individual tonnages at the lower prices.

Cincinnati, Dec. 6.—The reduction last week in Jackson county silvery and ferrosilicon prices of $2 on every grade has brought little actual business but has stimulated interest. The pig iron market again is quiet after the activity of last week. Lake furnace prices are said to be $16.25 to $16.50, base, furnace. Ironton furnaces are holding to $19 base, and southern iron is held at $16, base, Birmingham. The only sale reported

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Pig Iron Prices

Per gross ton

Bessemer, valley furnace	$17.50 to 18.00
Bessemer, del. Pittsburgh	19.26 to 19.76
Basic, valley furnace	17.00
Basic, del., Pittsburgh	18.76
Basic, Buffalo furnace	16.50 to 17.00
Basic, del., eastern Pa.	19.25 to 19.50
Malleable, valley furnace	17.50
Malleable, del. Pittsburgh	19.26
Malleable, del. Cleveland	18.50
Malleable, Chicago furnace	18.50
Malleable, Buffalo furnace	17.50
Malleable, del. eastern Pa.	20.25 to 20.75
No. 1 foundry, Chicago furnace	19.00
No. IX, eastern del., Phil.	20.76 to 21.26
No. IX, Buffalo furnace	18.00 to 18.50
No. 2 foundry, valley furnace	17.25 to 17.50
No. 2 foundry, del., Pittsburgh	19.01 to 19.26
No. 2 fdy., Everett, Mass., fur.	19.00 to 21.00
No. 2 foundry, Buffalo furnace	17.00
No. 2 foundry, Chicago furnace	18.50
No. 2 foundry, Granite City	19.50 to 20.00
No. 2 foundry, Ironton furnace	19.00
No. 2 foundry, del. Cleveland	18.50
No. 2 foundry, del. Phila.	19.76 to 20.26
No. 2 Virginia furnace	20.50 to 21.00
No. 2 foundry, N. J., tidewater	19.78 to 21.76
No. 2 foundry, east N. Y. fur.	18.00 to 20.00
No. 2 Alabama, Birmingham	16.00
No. 2 Alabama, del. Cincinnati	19.69
No. 2 Tenn., Birmingham base	16.00
No. 2 Tenn., del., Cincinnati	19.69
No. 2 Alabama, del. Philadelphia	22.01
No. 2 Alabama, del. Chicago	22.01
No. 2 Ala., del. Chicago, river-rail	20.18
No. 2 Ala., del. Boston, rail-water	23.91 to 24.91
No. 2 Alabama, del. Cleveland	22.01
No. 2 Alabama, del. St. Louis	20.42
No. 2X east, N. J., tidewater	20.28 to 22.26
No. 2X, eastern, del. Phila.	20.26 to 20.76
No. 2X, foundry, Buffalo furnace	17.50
No. 2X, eastern, del. Boston	23.15 to 24.15
No. 2X, Virginia furnace	21.00 to 21.50
No. 2X, Virginia, del. Phila.	26.04
No. 2X, Virginia, del. Jersey City	26.37
No. 2X, Virginia, del. Boston	26.71
Gray forge, val., del., Pittsburgh	18.51 to 18.76
Low phos., standard, valley	27.00 to 27.50
Low phos., standard, Phila.	24.76 to 27.79
Low phos., copper bearing fur.	23.00 to 24.00
Charcoal, Birmingham	29.00
Charcoal, Superior, del. Chicago	27.04

Silvery iron, Jackson county (Ohio) furnace, in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county (Ohio) furnace, in per cents; 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$40.50.

The Market Section

Coke

Negotiations On for First Quarter Beehive—Users Want Wage Clause—Extend By-Product Price

BLAST furnace interests are negotiating for beehive coke for first quarter. While makers quote $3 for that period the possibility of wage reductions leads some consumers to insist on a wage clause in their contracts. Makers counter with proposals for minimum prices at $2.85 to $2.90. Spot sales are noted at $2.60. By-product coke prices are being renewed for first quarter.

Pittsburgh, Dec. 6.—First quarter beehive coke contracts are beginning to appear. At least one furnace now active is gathering quotations, and others are about to start. Only one or two furnace interests are protected. Cokemakers are inclined to quote $3 or more. Some users want a wage clause as it seems wage reductions cannot long be deferred. Since that would bring a reduction automatically to around $2.65 for standard beehive furnace coke, certain producers want a minimum inserted and name $2.85 or $2.90. Following recent sale of standard furnace coke for December shipment at $2.75, a few other sales have been noted at $2.60 involving five to 15 carloads at a time. Single carloads are available at $2.50, usually on wheels, or due to other distress. Foundry coke is available as low as $3.50 and $3.75. Some buyers, accustomed to paying $4.75, are turning to cheaper brands at $4 to $4.25 as an economy measure. Certain makers still asking $4.50 to $4.75 are receiving more inquiries. One premium brand sells at $5.10; others are offered at $5.35, both adding 25 cents when box cars are specified.

Production of coke in the Connellsville region in the week ended Nov. 26 was 40,880 tons, compared with 43,350 tons in the preceding week, according to the *Connellsville Courier*.

New York, Dec. 6.—Contracts for foundry coke are being renewed for first half. The two New England by-product producers are taking first half contracts on the basis of the prices prevailing at time of shipment. A Pennsylvania beehive operator is taking first half foundry coke contracts at $5.10, ovens, for hopper cars and $5.35 for box cars. Demand for foundry coke continues slow and consumption has shown no improvement. Spot foundry coke is $4 to $4.50, Connellsville, with higher for premium brands. By-product foundry coke continues $8.75, ovens, in

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Coke Prices

Beehive Ovens

Prices per Net Ton

Connellsville furnace	$2.50 to 2.75
Connellsville foundry	3.50 to 4.75
New River foundry	7.00 to 8.00
New River furnace	6.00
Wise county, foundry	4.25 to 5.50
Wise county, furnace	4.00 to 5.00
Alabama foundry	5.50

By-Product

Foundry, Newark, N. J., del.	9.59 to 10.77
Foundry, Chicago, ovens	9.00
Foundry, New England, del.	12.00
Foundry, St. Louis	9.75
Foundry, Birmingham	5.00 to 5.50
Foundry, Indianapolis, del.	9.75
Foundry, Ashland, Ky.	7.50
Foundry, Portsmouth, O.	7.50
Foundry, Detroit, ovens	9.00
Foundry, Buffalo, ovens	9.00

Ferroalloys

Ferromanganese at $100—Special Alloys Are Lower

New York, Dec. 6.—All makers of ferromanganese have withdrawn the $90, duty paid, tidewater price prevailing since the latter part of May and are quoting $100 on all new business up to July 1, 1928. Rogers Brown & Crocker Bros. Inc., representing Darwen & Mostyn Iron Co., Ltd., Wigan Coal & Iron Co., Ltd., and Bolckow Vaughan & Co., Ltd., all of England, were the first sellers to announce this action, on Dec. 1. Other sellers which immediately opened their books on the $100 basis are Frank Samuel & Co., Philadelphia, representing Linthorpe Dinsdale Smelting Co., England; Electro Metallurgical Sales Corp., importer of Canadian and Norwegian ferromanganese, and the two domestic market producers Bethlehem Steel Co., and E. J. Lavino & Co. The announcement is stimulating demand for shipments on the last half contracts at $90.

Importers of English forromanganese for the first time are willing to sell with a guarantee against a decline. A year ago, when importers and domestic producers were soliciting 1927 contracts, most of the business went to the domestic producers and to the importers of Canadian and Norwegian ferromanganese. Later, it developed that the sellers who had participated most actively in the business for the first half of 1927 had agreed to give customers the benefit of any reduction in the market price.

In the second quarter came two cuts of $5 each. Both apparently resulted from concessions offered by importers of English metal. Consequently the price dropped from $100, to $90, and stayed at $90 the rest of this year until its withdrawal last week. Now all makers who are soliciting first half ferromanganese contracts in this country guarantee their customers against a decline.

Special ferroalloys will sell at slightly lower prices on 1928 contracts than for 1927. Fifty per cent ferrosilicon for next year is $83.50 a gross ton, freight allowed, compared with $85 the past three years. For less than carlots the price is $5 more. No change has been announced for 75 per cent, cut some time ago to $135 a ton.

Ferrochrome with 4 to 6 per cent carbon will be 11.00c on shipments next year, compared with 11.50c a pound contained the past three years. On maximum 2 per cent the price is cut 1 cent to 20.00c a pound contained, and on maximum 0.10 per cent the cut is 2 cents to 30.00c, freight allowed.

Silicomanganese is cut $5 a ton to $145 for maximum 2½ per cent and $155 for 1 per cent. Ferrovanadium is unchanged at $3.15 to $3.65 a pound contained, depending on quantity, analysis, etc. Ferrotungsten, not sold on the annual contract basis, is stronger with 95.00c, a pound contained, quoted. The ore, wolframite, is stronger at $10.35 to $10.50 a short ton unit, with an unusually light supply in this country. Scheelite ore is slightly over this range.

New prices for 1928 became generally known to the buyers Dec. 1, and many contracts have been signed.

New York, Dec. 6.—Spiegeleisen business signed up the past week aggregated several thousand tons, for shipment in first and second quarters. The market on 19 to 21 per cent spiegeleisen is $30 to $32, furnace.

Pittsburgh, Dec. 6.—Considerable progress has been made by ferroalloy sellers in lining up their trade for next year or the first half, particularly on 50 per cent ferrosilicon, $1.50 to $83.50. The ferromanganese price as announced effective Dec. 1, $100, base, Atlantic seaboard, is an effort to restore the early 1926 quotation. Occasional spot sales of single carloads of 16 to 19 per cent spiegeleisen are made at $30 and $30.50, f.o.b. Hazard, Pa., base. The contract price is higher, namely $32 or less, depending on tonnage sought.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$100.00
Ferromanganese, del., Pittsburgh	104.79
Spiegeleisen, 19 to 21 per cent domestic furnace	30.00 to 32.00
Ferrosilicon, 50 per cent freight allowed, 1927	85.00 to 87.50
Do, 1928 contracts, carloads	83.50
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.50
Do, 1928 contracts	11.00
Ferrotungsten stand, lb. del.	11.50
Ferrotungsten stand. lb. cont.	95.00
Ferrovanadium, 30-40 per cent, per lb. estimated on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18%)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala., (24 per cent)	122.50

Plates

Inquiries at Chicago Total 30,000 to 35,000 Tons—Some First Quarter Orders Booked at 1.80c

PLATE inquiries at Chicago total 30,000 to 35,000 tons from various manufacturing lines, while buying for oil tank work is more active, 2000 to 2500 tons having been placed during the past week. General plate business elsewhere, however, does not show much improvement. Prices are firmer and some business has been booked for first quarter at 1.80c, Pittsburgh and 1.90c, Chicago.

PLATE PRICES, PAGE 1438

New York, Dec. 6.—Some first quarter business recently was taken in steel plates at 1.80c, base, Pittsburgh. but the mills decided to do nothing further along this line, there being an expectation in some directions that the plate market shortly might go to 1.90c, base, Pittsburgh. The market on new business, however, appears firm at 1.80c, base, Pittsburgh, except that consumers generally are obtaining their requirements from their regular sources of supply at prices in effect prior to the 1.80c price. Shipments are going forward from Lukens Steel Co., Coatesville, Pa., on 5000 to 6000 tons for a pipe line at Springfield, Mass., being fabricated by Wash Holyoke Steam Boiler Works,

Pittsburgh, Dec. 6.—Low price plate contracts will expire Dec. 31 and plate mills claim they are insisting on receiving all shipping instructions by that date. After that 1.80c will apply. In the meantime, some spot business is occasionally transacted at 1.80c and a few first quarter contracts have been closed on that basis. Awards among the plate fabricators have dwindled and while there is considerable talk of numerous barge purchases and other lettings for early 1928, the tendency is to postpone action until after the holidays.

Cleveland, Dec. 6.—First quarter business is being booked at 1.80c, Pittsburgh, along with small lots for delivery the rest of the year. Most plate shipments are going under 1.75c protection. Lake shipyards are taking fair lots for ship repair work. A lull in buying is in prospect for the last half of December. The buying rate thus far in the month is not equal to that of November but shows big improvement over October.

Chicago, Dec. 6.—Buying of plates for oil tank work continues active despite curtailment in oil production. A tank builder took 2000 to 2500 tons for storage tank work in west Texas. Inquiry for plates, including material for purposes outside of the oil industry, was heavier than for some weeks, while inquiry for both plates and shapes amounted to 55,000 to 60,000 tons. Plate inquiry alone is 30,000 to 35,000 tons, some for first quarter from manufacturing, car building and structural lines. Except oil tankage material covered previously as regards price, the 1.90c, Chicago, price is being named exclusively. All first quarter business is being negotiated at that figure.

New Rates to South to Help Chicago

Chicago, Dec. 6.—Finished steel shipments moving under fourth and fifth class rates are affected by the new schedule of freight rates announced by the interstate commerce commission for Chicago and the area south of the Ohio river. This schedule removes the 40 per cent alleged discrimination which heretofore was charged by western shippers as working against them and favoring eastern manufacturers and shippers.

The new rates, effective Jan. 15, provide that Chicago now can ship south on a parity with New York, Boston, Philadelphia, Baltimore, and other eastern centers. Fourth class rates from Chicago to Birmingham, for example, have been reduced from $1.25 to 98 cents. Fifth class rates are reduced from 97½ cents to 80 cents in shipments from Chicago to Birmingham. Fourth class rate of $1.27 from Chicago to Mobile, Ala., is reduced to $1.13. Fifth class rate between the same points is reduced from $1.03 to 93 cents.

No commodity rates in iron and steel products are affected.

"The decision is one of the commercially momentous rulings of the generation, and means millions to the industries of the middle west," said William R. Dawes, president of the Chicago Association of Commerce, in commenting upon the new schedules.

Philadelphia, Dec. 6.—Plate demand is somewhat improved owing to increased consumption by manufacturers of oil tanks and boilers. Some consumers are slightly increasing stocks in anticipation of higher prices. The market is 1.75c to 1.80c, base, Pittsburgh, the former price applying to attractive business for December shipment.

Semifinished

Prices Being Reaffirmed for New Contracts—Strip Steel Makers Covering First Quarter

CONTRACTS for semifinished steel are up for renewal, and makers generally are reaffirming prices. Billets and slabs are taking a price of $33, Pittsburgh, while $34 applies on sheet bars though some users are endeavoring to obtain a lower price on bars. Certain strip steel manufacturers are covering their needs for the entire first quarter. Wire rods are being booked at $42.

SEMIFINISHED STEEL PRICES, PAGE 1438

Pittsburgh, Dec. 6.—From present appearances the prevailing market levels on semifinished steel will be carried over into the first quarter. Many billet and slab customers plan to purchase their January quotas within the next week or two. A few users may make quarterly arrangements, particularly strip steel manufacturers. Billets and slab prices will be reaffirmed at $33, while it is understood $34 will continue to apply on sheet bars. Some forging billet contracts are up for renewal, and $38 to $39 is quoted. While some wire rod buyers lately have been active, the price situation has not cleared much except that $42 may be the level for the first quarter. Winding up the fourth quarter, many shipments are going out against $40 and $41 orders. Some skelp shipments are going out against contracts lower than 1.80c, the basis for first quarter contracts now being entered.

New York, Dec. 6.—The wire rod market is steady, at $40 to $42, base, Pittsburgh.

Chicago, Dec. 6.—Buying of billets in the open market is extremely light. A base price of $33, Chicago, is named for 4 x 4-inch billets. Other semifinished activity is steady, although reflecting the slight increase in finished steel operations the past several weeks. Wire rods are $42 to $43, Chicago.

Iron Imports 4460 Tons

New York, Dec. 6.—Pig iron imports at this port in the week ending Dec. 3 included 2651 tons from the United Kingdom and 1809 tons from British India. A shipment of 988 tons of iron ore came in from the Netherlands as ballast. Steel imports included 24 tons of wire rods from Germany, 15 tons of steel bars from Belgium and nine tons of structural shapes from Belgium.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons Delivered to Consumers

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.50 to 10.75
Boston (dealers)	8.50 to 9.00
Buffalo, No. 1	14.50 to 15.00
Buffalo, No. 2	12.50 to 13.00
Chicago	11.75 to 12.25
Cincinnati (dealers)	11.00 to 11.50
Cleveland, No. 1	13.25 to 13.75
Cleveland, No. 2	12.75 to 13.25
Detroit, No. 1	11.25 to 11.75
Eastern Pennsylvania	13.50 to 14.00
Eastern Pennsylvania, No. 2	11.00 to 11.50
Bethlehem delivery	13.00 to 13.50
New York (dealers) (railroad)	10.00 to 10.85
New York (dealers) (yard)	6.25 to 6.75
Pittsburgh, No. 1	14.50 to 15.00
St. Louis	11.00 to 11.25
Valleys, No. 1	14.50 to 15.00

COMPRESSED SHEETS

Buffalo	11.50 to 12.00
Chicago	10.25 to 10.75
Cleveland	12.25 to 12.50
Detroit	9.75 to 10.25
Pittsburgh	13.50 to 14.00
Valleys	13.50 to 14.00

BUNDLED SHEETS

Buffalo	8.75 to 9.25
Cincinnati (dealers)	9.50 to 10.00
Cleveland	11.00 to 11.25
Eastern Pennsylvania	10.50 to 11.00
Pittsburgh	12.50 to 13.00
St. Louis	7.75 to 8.25

SHEET CLIPPINGS, LOOSE

Chicago	8.25 to 8.75
Cincinnati	8.75 to 9.25
Detroit	7.50 to 8.00
St. Louis	7.50 to 8.00

STEEL RAILS, SHORT

Birmingham	11.50 to 12.00
Buffalo	13.50 to 14.00
Chicago	14.50 to 15.00
Cincinnati (dealers)	16.00 to 16.50
Detroit	11.00 to 11.50
St. Louis	15.50 to 16.00

STOVE PLATE

Birmingham	13.00 to 14.00
Boston (consumers)	12.50 to 13.00
Buffalo	12.75 to 13.25
Chicago (net)	12.00 to 12.50
Cincinnati (dealers) net	9.50 to 10.00
Cleveland	12.00 to 12.50
Detroit (net tons)	10.75 to 11.25
Eastern Pennsylvania	12.00 to 12.50
New York (dealers) (mill)	8.25 to 8.50
Pittsburgh	12.00 to 12.50
St. Louis	13.00 to 13.50

LOW PHOSPHORUS

Buffalo, billet and bloom crops	16.50 to 17.00
Cincinnati (dealers)	13.00 to 13.50
Eastern Pennsylvania	17.50 to 18.50
Pitts. billet and bloom crops	18.50 to 19.00
Cleveland, billet and bloom crops	17.00 to 17.50

SHOVELING STEEL

Chicago	11.75 to 12.25
Pittsburgh	11.00 to 11.50
St. Louis	11.00 to 11.25

KNUCKLES, COUPLERS, SPRINGS

Chicago	13.50 to 14.00
Eastern Pennsylvania	16.00 to 16.50
Pittsburgh	16.25 to 16.75
St. Louis	12.00 to 12.50

FROGS, SWITCHES, GUARDS

Chicago	13.00 to 13.50
St. Louis	12.50 to 12.75

ANGLE BARS—STEEL

Buffalo	15.25 to 15.75
Chicago	13.50 to 14.00
St. Louis	11.00 to 11.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.50 to 12.00
Boston (dealers)	10.50 to 11.00
Buffalo, No. 1	12.25 to 12.75
Buffalo, No. 2	14.25 to 14.75
Chicago, No. 1	11.25 to 11.75
Chicago, No. 2	11.75 to 12.25
Cincinnati, No. 1 (dealers)	11.00 to 11.50
Cleveland, No. 1	11.50 to 12.00
Eastern Pennsylvania	15.50 to 16.00
New York, No. 1 (dealers)	12.50 to 13.00
Pittsburgh, No. 1	11.00 to 11.50
Pittsburgh, No. 2	14.50 to 15.00
St. Louis, No. 1	10.00 to 10.50
St. Louis, No. 2	11.25 to 11.50

WROUGHT PIPE

Boston (dealers)	8.00 to 8.50
Eastern Pennsylvania	11.50 to 12.50
Buffalo	12.00 to 12.50
New York (dealers)	8.25 to 8.75

YARD WROUGHT

Boston	8.50 to 9.00
Eastern Pennsylvania	15.00 to 15.50

BUSHELING

Buffalo	12.00 to 12.50
Chicago, No. 1	10.25 to 10.75
Chicago, No. 2	8.50 to 9.00
Cincinnati, No. 1 (dealers)	10.50 to 11.00
Cincinnati, No. 2	7.00 to 7.50
Pittsburgh, No. 1	12.00 to 12.50
St. Louis, No. 1	9.75 to 10.25

MACHINE SHOP TURNINGS

Birmingham	8.00 to 9.00
Boston	6.00 to 6.50
Buffalo	9.00 to 9.50
Chicago	7.50 to 8.00
Cincinnati (dealers)	8.50 to 9.00
Cleveland	9.00 to 9.25
Detroit	7.00 to 7.50
Eastern Pennsylvania	10.50 to 11.00
New York (dealers)	6.50 to 7.00
Pittsburgh	11.00 to 11.50
St. Louis	6.25 to 6.75

CAST IRON BORINGS

Birmingham (chemical)	13.00 to 13.50
Birmingham plain	8.00 to 9.00
Boston, (chemical)	10.75
Boston (dealers)	6.50 to 7.50
Buffalo	10.00 to 10.50
Chicago	9.75 to 10.25
Cincinnati (dealers)	8.50 to 9.00
Cleveland	10.25 to 10.75
Detroit	8.50 to 9.00
Eastern Pennsylvania	11.25 to 11.50
Eastern Pennsylvania (chem.)	15.00 to 15.50
New York (dealers)	6.75 to 7.35
Pittsburgh	11.00 to 11.50
St. Louis	9.00 to 9.25
Valleys	13.50

MIXED BORINGS AND TURNINGS

For blast furnace use

Boston (dealers)	5.50 to 6.00
Buffalo	10.00 to 10.50
Cincinnati (dealers)	8.50 to 9.00
Cleveland	10.25 to 10.75
Detroit	8.50 to 9.00
Eastern Pennsylvania	10.50 to 11.00
New York (dealers)	6.75 to 7.35
Pittsburgh	11.00 to 11.50

PIPES AND FLUES

Chicago (net)	7.50 to 8.00
Cincinnati (dealers)	7.50 to 8.00
St. Louis	9.25 to 9.75

RAILROAD GRATE BARS

Buffalo	10.50 to 11.00
Chicago (net)	11.00 to 11.50
Cleveland	12.00 to 12.50
Eastern Pennsylvania	12.50
New York (dealers)	8.25 to 8.75
St. Louis	11.00 to 11.50

FORGE FLASHINGS

Boston (dealers)	6.00 to 6.50
Buffalo	11.00 to 11.50
Chicago	9.00 to 9.50
Cleveland (over 10 in.)	12.00 to 12.50
Detroit	9.25 to 9.75
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston (dealers)	6.00 to 6.50
Chicago	14.00 to 14.50
Eastern Pennsylvania	10.50 to 11.00

ARCH BARS AND TRANSOMS

Chicago (net)	17.50 to 18.00
St. Louis	18.50 to 19.00

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	8.00 to 8.50
Buffalo	13.00 to 13.50
Chicago	10.25 to 10.75
Cleveland	12.00 to 12.25
Eastern Pennsylvania	12.50 to 13.00
Pittsburgh	13.00 to 13.50
St. Louis	8.50 to 9.00

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston (shipping point)	15.50 to 16.00
Buffalo	14.75 to 15.25
Chicago	17.35 to 17.85
Cleveland	16.00 to 16.50
Eastern Pennsylvania	21.00 to 22.00
Pittsburgh	18.00 to 18.50
St. Louis	18.25 to 18.75

SHAFTING

Boston (shipping point)	14.00 to 14.50
Chicago	16.80 to 17.35
Eastern Pennsylvania	17.50 to 18.00
New York (dealers)	14.00 to 14.50
St. Louis	16.00 to 16.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	14.00 to 15.00
Boston (consumers)	17.00 to 17.50
Buffalo, iron	13.75 to 14.25
Buffalo, steel	15.25 to 15.75
Chicago, iron	13.50 to 14.00
Chicago, rolled steel	14.50 to 15.00
Cincinnati	12.75 to 13.25
Eastern Pennsylvania	16.00 to 16.50
New York iron (dealers)	12.00
Pittsburgh, iron	14.00 to 14.50
Pittsburgh, steel	16.25 to 16.75
St. Louis, iron	12.00 to 12.50
St. Louis, steel	12.50 to 13.00

NO. 1 CAST SCRAP

Birmingham, cupola	14.00 to 14.50
Boston	15.50 to 16.00
Buffalo	14.00 to 14.50
Chicago, No. 1 machinery	15.70 to 16.25
Chicago, No. 1 railroad	14.00 to 14.55
Chicago No. 1 agricultural	14.00 to 14.55
Cincinnati No. 1 machinery cupola (net tons dealers)	14.50 to 15.00
Cleveland, cupola	16.50 to 17.00
Detroit (net tons)	12.50 to 13.00
Eastern Pennsylvania (cupola)	16.50 to 17.00
New York, cupola (dealers)	13.50 to 14.00
Pittsburgh, cupola	14.50 to 15.00
San Francisco, delivered	20.00 to 21.00
Seattle	16.00
St. Louis, railroad	13.25 to 13.75
St. Louis, agricultural	13.25 to 13.75
St. Louis, machinery	13.25 to 13.75
Valleys	16.50 to 17.00

HEAVY CAST

Boston	15.00 to 15.50
Buffalo (breakable)	11.50 to 12.00
Cleveland	12.50 to 12.75
Detroit (automobile) (net tons)	18.50 to 19.50
Eastern Pennsylvania	15.50 to 16.00
New York (dealers)	11.75 to 12.00
Pittsburgh	13.50 to 13.75

MALLEABLE

Boston, railroad	14.50 to 15.00
Buffalo	13.50 to 14.00
Chicago, agricultural	11.75 to 12.25
Chicago, railroad	12.50 to 13.00
Cincinnati, railroad (dealers)	12.00 to 12.50
Cincinnati, agricultural (dealers)	11.00 to 11.50
Cleveland, agricultural	15.00 to 15.50
Cleveland, railroad	15.50 to 16.00
Detroit, auto	13.50 to 14.00
Pittsburgh, railroad	14.00 to 14.50
St. Louis, agricultural	10.75 to 11.25
St. Louis, railroad	11.50 to 12.00

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	13.50 to 14.00
Boston (dealers)	10.50 to 11.00
Buffalo	14.25 to 14.75
Chicago	13.75 to 14.25
Eastern Pennsylvania	16.00
New York	11.00 to 12.00
Pittsburgh district	16.50 to 17.00
St. Louis	13.25 to 13.75

LOCOMOTIVE TIRES

Chicago, No. 1	14.00 to 14.50
Chicago, cut	14.00 to 14.50
St. Louis, No. 1	13.00 to 13.50

LOW PHOSPHORUS PUNCHINGS

Chicago	13.25 to 13.75
Pittsburgh	16.25 to 16.75

Scrap

Western Markets Feel Start of Heavier Buying—Less Change Shown in East

WITH disappearance of much of recent heaviness in all scrap trading centers, western markets show a positive trend to larger buying and better prices. In the East conditions are quieter, as melters seem to have sufficient material on contract to cover needs. Prices have reached an apparent bottom and definite advance is showing.

Chicago, Dec. 6.—Iron and steel scrap quotations have reacted to the strength of heavy melting steel, and the market is pointing definitely upward for the first time in two months. Higher quotations are being named, most items advancing 25 to 50 cents. Heavy melting steel, largely representative of dealer activity, is up 25 cents and now is quoted at $11.75 to $12.25. Busheling, compressed sheets, borings and turnings and miscellaneous railroad scrap have been influenced accordingly. Malleable grades and No. 1 wrought are unaffected.

Boston, Dec. 6.—Trading in scrap for shipments outside New England is decreasing. Current business is scattered carlots of miscellaneous scrap, in which heavy melting steel, pipe, steel turnings, mixed borings and turnings were most in demand.

New York, Dec. 6.—Iron and steel scrap lacks fresh consuming demand of importance. Practically all trading is against back contracts, with dealers paying $13.50, delivered, for heavy melting steel for shipment to Coatesville, Pa., Conshohocken, Pa., Claymont, Del., and Bethlehem, Pa. Mixed borings and turnings are moving fairly well, with dealers paying $10, delivered Bethlehem, Pa., and $10.50, delivered Coatesville, Pa., Steelton, Pa., and Sparrows Point, Md. Cast and wrought scrap are moving sluggishly. Dealers' buying prices are unchanged throughout the the list.

Philadelphia, Dec. 6.—Sales of iron and steel scrap are limited to hand-to-mouth lots, involving not more than a couple of thousand tons each. Sales of this size involve No. 1 heavy melting steel. The latter grade is bringing $14 delivered at representative eastern Pennsylvania points and $13.50, delivered Bethlehem.

Buffalo, Dec. 6.—With large consumers covered for several weeks through large purchases of heavy melting steel the market for this material again is quiet, although dealers are moving large tonnages to melters and are buying to cover shipments. Specialties show little activity, with dealers strongly of the opinion that no large buying may be expected until after Jan. 1 in any line.

Pittsburgh, Dec. 6.—While there has been some covering on short orders taken at $14.25, delivered at an Ohio river consuming point, little open market activity has taken place for several days. Dealers have paid $14.25 to break even on the short orders referred to, and one or two are said to have paid $14.50, absorbing a 25-cent loss. The last sales at Monessen, Pa., were at $14.50 and $14.60, but the market is due for a decided spurt upward and $15, now the top of the market, is expected soon to be its minimum.

Cleveland, Dec. 6.—Iron and steel scrap in this district fails to reflect the upturn experienced elsewhere. The melt shows little, if any, improvement over a month ago. The steelmaker buying scrap supplies in the open market is regulating shipments closely. One Mahoning valley melter, figuring in the recent consolidation, is not buying pending determination of new policies. Prices are unchanged at $13.25 to $13.50 for No. 1 heavy melting steel at Cleveland and $14.50 to $14.75 in the valley.

St. Louis, Dec. 6.—After a long period of declining prices and apathy on the part of consumers, iron and steel scrap seems to have taken a definite turn for the better. There were several revisions in prices, and while mills have not engaged important tonnages, they are showing more interest, and tentative inquiries are current. In the past ten days dealers have been actively covering on their orders. They are taking relatively little material out of yards and are seeking tonnages to apply on sales. Some material is coming from country shipping points, but this movement is less than usual at this season.

Birmingham, Ala., Dec. 6.—Spasmodic buying of iron and steel scrap is noted, heavy melting steel leading. No. 1 cast and stove plate are also active though borings, turnings and steel rail come in for a little attention. Melting steel holds at $10.75, delivered, in home territory.

Cincinnati, Dec. 6.—The scrap market is becoming slightly stronger, with a few price changes upward. Heavy melting steel is up 25 cents to $11 to $11.50. Sheet clippings, loose, now are $8.75 to $9.25, stove plate $9.50 to $10, machine shope turnings $8.50 to $9, and No. 1 cast foundry scrap $14.50 to $15. Indications are that melters are using up their surplus scrap and are coming into the market for small lots in addition.

Exports of bathtubs from the United States in September totaled 1290, of which Cuba received 478 and Argentina 301.

Sheets

Market Is More Active—Some First Quarter Contracts Taken at Recent Low Figures

SOME large contracts for automotive sheets are scheduled to be closed this week, and in other lines activity is more noticeable. Operations have increased in some districts. Certain consumers are urging first quarter tonnage requirements on producers at the low prices recently prevailing, and while a stronger feeling prevails the market has not been established.

SHEET PRICES, PAGE 1438

Youngstown, O., Dec. 6.—The local sheet market is in a state of flux. It is tempted to advance with various independents but hesitates because of low quotations in adjoining competing districts. The most general quotation on galvanized is 3.65c, Pittsburgh, but important sellers have just quoted 3.60c in sharp competition. Common black sheets have been sold into first quarter by valley mills under 2.90c, Pittsburgh. Indeed, 2.80c appears nearer today's price. As the American Sheet & Tin Plate Co. has named 2.90c for tin mill black, following the logic of the last previous price announcement by that company, its common black price for first quarter is likely to be 2.80c. Autobody sheets are 4.00c, Pittsburgh, and a few more orders are coming from Michigan builders.

Monday's mail brought in a slightly more saticfactory volume of specifications for black, galvanized and blue annealed, and a slightly heavier schedule of sheet mill activity starts off the week.

New York, Dec. 6.—Wheeling Steel Corp.'s announcement of 2.10c, base, Pittsburgh, on blue annealed sheets, 2.90c on black, and 3.75c on galvanized, with new width extras on blue annealed sheets 40 inches or wider, has been followed by similar action by Bethlehem Steel Co. Other makers expect to follow suit. The two makers above mentioned are not taking any new business at less than the prices mentioned. Elsewhere. tonnages

for this year continue to be taken at 2.10c base, Pittsburgh, for blue annealed, 2.80c for black, and 3.65c for galvanized. Consumers, however, have been advised that Dec. 31 will see the end of anything lower than 2.90c on black and 3.75c on galvanized. This is stimulating demand, and some buyers are enlarging their stock.

Chicago, Dec. 6.—Sales of sheets have shown decided improvement. Operations now are about 80 per cent for the district, against less than 70 a week ago. Some buyers are covering for first quarter. Mills in this territory have not advanced quotations in line with higher prices named in the East but it is probable that quotations will be advanced soon. Chicago delivered prices for No. 24 black sheets are 2.95c and for No. 10 blue annealed 2.30c. While the mill price for No. 24 galvanized at Indiana Harbor is held at 3.80c, a price of 3.75c is quoted at Gary, making the range 3.80c to 3.85c, delivered Chicago.

Pittsburgh, Dec. 6.—Sheet users in every line except automobile and freight car building are at least normally busy, and some are abnormally active. These are asking mills for bookings for first quarter at present prices, some wanting the minimum now available. While two or three producers have announced higher prices, ostensibly for first quarter, some manufacturers have not formally opened books for the first quarter but have yielded to requests of certain customers for coverage to March 31. These orders have been taken at minimums of 2.15c on blue annealed, to except 11-gage and heavier on which the base is 2.10c; 2.80c for black and 3.65c for galvanized. The Wheeling Steel Corp. on Dec. 1 quoted 2.10c for blue annealed (plus a 10-cent extra for sheets wider than 40 inches), 2.90c on black, and 3.75c on galvanized, followed by Bethlehem Steel Corp. the next day. Spot market prices still indicate the presence of some shippers who want cheap tonnages, and prices around 2.75c and 3.60c on black and galvanized, respectively, continue to appear. Some users of full finished sheets, other than the Ford Motor Co., have developed a 4.00c price on full finished sheets and have placed some contracts for the first quarter at that figure. Most of the Ford tonnage and a great deal of the General Motors Corp. requirements are still to be placed, and the present week is scheduled to see the closing up of a number of large contracts. Deliveries can be given in three weeks, and unless present plans miscarry the automotive industry generally will be operating on a high plane early in January.

Cleveland, Dec. 6.—More cheerfulness is encountered in the sheet steel market as orders increase in volume. No marked improvement is noted, but better buying in the automotive line is beginning to appear. Sellers cannot agree on prices. Although several mills expect prices for first quarter to be increased, other makers are willing to take business for delivery after Jan. 1 at 2.80c, Pittsburgh, for black. The market on spot lots continues to hold at 2.75c to 2.80c, for black, 2.00c to 2.10c, on blue, and 3.65c to 3.75c, for galvanized. Autobody stopped its decline the past week and remained at 4.00c,, without any apparent break.

Tin Plate

New Price Recognizes Recent Concessions—$5 Under Official Market

TIN PLATE PRICES, PAGE 1438

Pittsburgh, Dec. 6.—American Sheet & Tin Plate Co. Dec. 1 announced its first quarter price on tin plate as $5.25 per base box of 100 pounds, Pittsburgh. Independent producers are naming similar figures and booking their regular trade. Buyers generally appear to be satisfied with this price, $5 lower than the preceding level which had not been officially changed since May, 1923. From time to time cut prices appeared in recent months, and this $5.25 figure gives recognition to them, although it is claimed that on this lower basis it will not be possible to repeat the preceding preferential figures for large consumers. Instead of being 25 cents this will not exceed 15 cents and in some cases 10 cents.

New York, Dec. 6.—All makers have followed the example of the American Sheet & Tin Plate Co., and now are quoting $5.25 per base box, Pittsburgh.

Gustavus I, personally owned and operated the Swedish Finspong's works and blast furnaces and in 1555 made cannon for the first time from cast iron.

Pipe

Mill Operations Continue Without Improvement—French Low on Detroit Cast Pipe Tonnage

CONDITIONS in the operations of tubular products mills are practically unchanged. Line pipe business of attractive nature continues in sight but business is composed mostly of small sales. French makers again have entered the Middle West, with a bid $2.70 a ton under the lowest American quotation on 10,000 tons of 6 to 24-inch at Detroit.

PIPE PRICES, PAGES 1438 AND 1472

Pittsburgh, Dec. 6.—Standard full weight merchant pipe orders are fairly numerous despite the policy of jobbers to hold their stocks small before inventory. The demand from these buyers has been maintained fairly well for a number of months since building programs have been well sustained. Oil country jobbers have placed orders more spasmodically. A few pipe lines are being considered taking several thousand tons, but on larger quantities action is deferred. Pipe mill operations average 55 to 60 per cent, instead of 50 to 55 per cent as was the case recently.

New York, Dec. 6.—Fresh cast pipe inquiry is slowing up here. Several old jobs, involving substantial tonnage, are expected to be closed soon. One involves 15,000 tons previously noted as pending for Federal Water Service Corp. Prices are unchanged, but firmer.

Boston, Dec. 6.—The 1000 tons of 4 to 12-inch pipe for Providence, R. I., bids on which were opened a fortnight ago, has been awarded to the United States Cast Iron Pipe & Foundry Co., though it was not the lowest bidder. Private business continues in fair volume and prices are firm.

Chicago, Dec. 6.—French sellers aagin entered the cast iron water pipe market with a low bid of $35.05, delivered, on 10,000 tons of 6 to 24-inch pipe for Detroit. Domestic delivered bids were American Cast Iron Pipe Co., $37.90, United States Cast Iron Pipe & Foundry Co., $38.20, Lynchburg Foundry Co., $38.40, and James B. Clow & Sons, $37.75. As the French pipe was offered for shipment from Montreal, a water freight rate would be involved. Figuring the foreign bid on the basis of the freight rate or $7.92 from Birmingham to Detroit, the base French pipe would be on the basis of $27.13, Birmingham. The award is being held over and the decision probably will be made tomorrow. Producers are filled comfortably until their inventory shut-downs about Dec. 15, and now are booking urgent contract business for first quarter delivery. The market for 6 to 24-inch is $34.60 to $38.20, delivered Chicago.

Birmingham, Ala., Dec. 6.—Lettings for winter production continue fairly good and pipe shops should maintain good operations through next 90 days. Quotations are unchanged, with base 6-inch and over at $29, although concessions still are heard. Much pipe is being shipped into territory where weather conditions does not cause complete stoppage of laying.

Cleveland, Dec. 6.—Stiffening in prices on tubular products for shipment direct to consumers, on jobbers' orders, is noted in this district. Although some occasions have been noted recently where a mill may have

quoted the regular jobber price on carloads to customers, most makers are holding to established levels. A new price card has been issued recently by one of the leading local jobbers on less carload lots.

CONTRACTS PLACED

12,000 tons, cast pipe for Elizabeth, N. J., placed through Interstate Equipment Co., with several makers.
3000 tons, 6 to 24-inch water pipe for Baltimore, to R. D. Wood Co.
1200 tons, 30-inch water pipe, Yonkers, N. Y., to United States Cast Iron Pipe & Foundry Co.
1082 tons, 6 to 12-inch class B, improvement of Market street, San Diego, Calif., through E. Paul Ford, to unstated maker.
1000 tons, 4 to 12-inch water pipe for Providence, R. I., to United States Cast Iron Pipe & Foundry Co.
300 tons, 8-inch pipe for Portland, Me., to R. D. Wood Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

10,000 tons, 6, 8, 12 and 24-inch pipe for Detroit; B. Nicoll & Co. $35.05 delivered; American Cast Iron Pipe Co. $37.90; United States Cast Iron Pipe & Foundry Co. $38.20; Lynchburg Foundry Co. $38.40; and James B. Clow & Sons $37.75. Award still pending.
1900 tons, 20-inch water pipe, department of water supply, gas and electricity, New York; general contract awarded to Norton Engineering & Contracting Co.
1800 tons, 8 to 30-inch pipe and 50 tons of fittings for Boston; bids close Dec. 21.
952 tons, 4 to 12-inch class B and C, Glendale, Calif.; bids opened.
835 tons, 2 to 12-inch class B, Burlingame, Calif.; bids in Dec. 13.
491 tons, 4 and 8-inch class B, improvement of South Main street, Santa Ana, Calif.; Gogo & Rados low bidders.
300 tons, 6 to 12-inch pipe, for Fall River, Mass., bids Dec. 9.
200 tons, Fall River, Mass.; bids asked.
100 tons, 6 to 8-inch pipe for Salem, Mass.; bids Dec. 6.
Unstated tonnage, 64,524 feet of 6 to 12-inch pipe for Towson, Md.; bids in Dec. 12 to John R. Haut, chief clerk.
Unstated tonnage, 26,000 feet, 4 to 12-inch pipe for Colonial Heights, Petersburg, Va.; bids in Dec. 6.

Valley Ingot Rate Down to 47 Per Cent

Youngstown, O., Dec. 6.—Steel ingot production in this district has slipped off another notch, to 47 per cent, but mill managers hope to begin to recover recently lost ground by the middle of the month. Strip and tin plate capacity is 70 per cent occupied, unchanged from last week; and steel bar mills are at 45 per cent for independents and 55 per cent for Carnegie Steel Co. Independent sheet mills are scheduled to start the week at 61 per cent, against 47 last week; but short turns are the general rule, those mills starting Monday being unlikely to finish the week. Tube mills operate about as before, 12 welding units out of 18 being active, and both seamless mills engaged also.

Bars

Specifications on Low-Priced Contracts Being Made Fully—Some Forward Buying

BETTER inquiry is being made for soft steel bars and some users are covering for first quarter. Some buying for current delivery is also being done. Notice by makers that tonnages unspecified on low-priced contracts will be canceled at the end of the year is sending in heavy specifications at Pittsburgh. Prices are firm and tend upward.

BAR PRICES, PAGE 1438

Chicago, Dec. 6.—While inquiry for plates and shapes took a pronounced upturn during the week, enlargement of inquiry for bar products was less pronounced. Bar sales, on the other hand, were ahead of the combined sales of plates and shapes and represented a gain over recent weekly average sales. The approaching inventory season is having a more noticeable effect on forward buying of soft steel bars than on plates and shapes. The policy of bar users in many lines to hold down stocks toward the close of the year is more pronounced than in former years. Most bar business is for current needs, but some users are covering for first quarter as the outlook appears more favorable for general business betterment. Some tendency is noticed for buyers to order slightly farther ahead.

Rail steel bars are in such demand as to keep both mills at Chicago Heights at a good operating rate. Furniture and bed manufacturers are buying moderately for expected early January business. Distributors of rail steel fence posts report some inquiry for spring trade. Output is slightly higher than in the similar period last year.

Negotiations for first quarter soft steel bar coverage are on the basis of 1.90c, Chicago, despite the fact that books are not formally open. Mills report that no buyers were given protection for first quarter at 1.85c before quotations were advanced $1 a ton Nov. 10. It is reported that considerable business for first quarter could have been booked a few weeks ago if mills had been inclined to protect so-called preferred industries at 1.85c. Rail steel bars show strength at 1.85c, Chicago Heights.

Youngstown, O., Dec. 6.—Some steel bars are being sold to important customers at the new price of 1.80c, Pittsburgh, but the orders cover lots of 100 tons or thereabout for first quarter delivery. However, the new price is bringing in considerable volumes of specifications on contracts placed at 1.75c. In fact, these contracts are well specified against and bid fair to be wiped out soon. Local independent bar mills are operating at slightly better rates than last week.

Pittsburgh, Dec. 6.—Specifications in merchant steel bars are mounting as makers have informed customers that all tonnage on low-priced contracts must be specified out by Dec. 31. After that date 1.80c is the firm minimum. Some specifications include 500 or 600 tons of a size at a time, but most are for 50 or 100 tons. Intimations are that the price will advance another $1 to $1.85c, before Jan. 1. In the meantime, spot business is being transacted at 1.80c and a large number of contracts for first quarter already have been written at that price. Refined iron bars are quiet, with small lots being asked and the minimum 2.75c.

Cleveland, Dec. 6.—Steel bar demand has lost some of its November impetus but continues at a fairly high rate. It is believed that buying will be heavier in the early part of December than the latter. An advance to 1.90c, Pittsburgh, is looked for before the first quarter, but meanwhile the 1.80c price is being established by sales for that delivery. Automotive demand is expanding moderately. Local mills quote 1.80c, Cleveland.

Philadelphia, Dec. 6.—Steel bar demand continues to show some improvement because users are stocking. On contracts 1.80c, Pittsbrgh continues firm.

More Foundry Equipment Is Ordered

Cleveland, Dec. 6.—Orders for foundry equipment in October registered a marked gain over September. Figures compiled by the Foundry Equipment Manufacturers association, with a base of 100 representing average monthly shipments for 1922-23-24, give October a rating of 98 compared with 80.4 in September and 140.5 last October. Comparisons follow:

	1924	1925	1926	1927
Jan.	141.8	104.2	168.2	180.4
Feb.	121.0	108.8	154.9	198.0
Mar.	121.9	159.3	157.3	131.1
Apr.	146.8	124.3	113.2	130.0
May	108.4	113.3	128.5	134.8
June	96.4	110.5	133.5	138.4
July	62.8	117.0	127.3	89.9
Aug.	77.5	190.0	141.2	106.4
Sept.	66.0	94.2	114.0	80.4
Oct.	85.5	149.5	140.5	98.0
Nov.	91.0	180.3	133.4	.....
Dec.	137.8	140.1	181.0	.....

Base: Average monthly shipments for 1922-23-24.

Chile received 18 mine cars from the United States in September, out of the total export of 37 freight cars.

Structural Shapes

Fabricators Find Little Slackening in Prospective Work—Awards of Week Increased Slightly in Number but Tonnage Dropped

FABRICATORS of structural steel are receiving inquiries for bids in sufficient number to indicate continued fair activity through the winter months. Although awards of the week were more numerous than the previous week, tonnage involved decreased. Inquiry total is heavy. Chicago fabricators estimate new inquiry of the week as aggregating 25,000 to 30,000 tons. New York fabricators have a large total of pending work in sight.

More interest is being shown by fabricators in covering their requirements ahead. Specific coverages also are being asked with more frequency than has been the case for months. Plain material is steady for new business at 1.80c, Pittsburgh, and 1.90c, Chicago.

STRUCTURAL SHAPE PRICES, PAGE 1438

Chicago, Dec. 6.—While sales of plain structural material were only moderately heavy, inquiry increased sharply. It is estimated that inquiry developed during the week runs more than 25,000 to 30,000 tons. Structural awards are not heavy but a large number of pending projects are in the active stage in the Chicago district. Estimates are being made on an 18-story building to be erected at Randolph and Wells streets, Chicago, for the Steuben club. Considerable interest is being shown by fabricators in first quarter contracting. Mills are holding to the 1.90c price, although not formally opening their books for first quarter.

Boston, Dec. 6.—The local market in structural steel is inactive. Little figuring is being done on new projects.

New York, Dec. 6.—Structural business is improving, although still not unusually active. Both orders and inquiries are more numerous, and include some fair tonnages. Considerable subway work is expected to be closed shortly. Commenting upon the month just closed, one leading shape maker reports a gain in business of 10 per cent over October. Shape prices are holding at last week's levels, but further advances by some of the mills are expected shortly.

The Structural Steel Board of Trade reports 34,000 tons of structural business placed in the metropolitan district in November, compared with 28,000 tons in the preceding month. These figures are exclusive of bridges, piers, subways, etc.

Pittsburgh, Dec. 6.—Structural shape mills are insisting upon receiving specifications by Dec. 31 on unfilled portions of old contracts. Then all protections are to expire and the present spot price, 1.80c, to become the market. It has applied in connection with some few spot sales as well as on a few first quarter contracts that have been written. Awards this week are scarce but a few are scheduled for letting before Jan. 1.

Buffalo, Dec. 6.—Shape and rail mills of Buffalo steel works are on double turn, with their high rate bringing up the average steelworks operations in the district. Orders for shapes placed in the Buffalo district are considerably higher than those in the country as a whole, it is believed here.

Philadelphia, Dec. 6.—Shapes continue in heavier demand, largely because users are increasing stocks before old prices expire. The market is 1.70c to 1.80c, Pittsburgh, the former restricted to attractive lots for December shipment.

Cleveland, Dec. 6.—Books have been opened for first quarter contracting of plain structural material at 1.80c, Pittsburgh. Fourth quarter contracts continue to be specified at 1.75c, but new business is taking 1.80c, with small and undesirable lots being quoted 1.90c. Makers expect a further increase in price before Jan. 1 to make first quarter contracts more desirable. No specific work of size has been closed but a fair aggregate tonnage is pending.

Awards Compared

	Tons
Awards this week	33,514
Awards last week	37,290
Awards two weeks ago	12,498
Awards this week in 1926	30,520
Average weekly awards, Nov.	23,243
Average weekly awards, 1927	35,503
Total awards to date, 1926	1,365,770
Total awards to date, 1927	1,737,663

CONTRACTS PLACED

7,447 tons, involved in the following awards:
Shed for Lehigh Valley railroad, Newark, N. J., to Hedden Iron Construction Co.
14-story apartment, Fifth avenue and Ninety-fourth street, New York.
15-story apartment, 447 East Fifty-seventh street, both going to Harris Structural Steel Co.
15-story apartment, Fifty-eighth street and Sutton place, New York.
16-story apartment, Riverside Drive and Fifty-seventh street, New York, both going to Paterson Bridge Works.
Hotel Equity, Scardale, N. Y.
Valencia theater, Jamaica, Long Island, N. Y., both going to Shoemaker Bridge Co.
Addition to Knickerbocker hospital, New York, to Levering & Garrigues Co.
Apartment, 11-17 West Sixty-ninth street, New York, to Dreier Iron Works.
Storehouse, Greenwich and Morton streets, New York.
Warehouse, 313-21 Ashland place, Brooklyn, N. Y.
Pythian Hall, 923-41 Eastern Parkway, Brooklyn, N. Y., all going to George A. Just Co.
Nassau County hospital, Rockville Center, N. Y., to unnamed fabricator.
Sarah Lawrence college, Yonkers, N. Y.
School, Middletown, N. Y.
Crawford memorial church, 208th street, New York.
Christian Science church, Great Neck, Long Island, N. Y.
School, Port Washington, Long Island, N. Y.
15-story apartment, Eighty-first street and West End avenue, New York.
Y. M. C. A., Westfield, N. J., all going to McClintic-Marshall Co.

7000 tons, building for Arnold-Constable Co., Fortieth street and Fifth avenue, New York, to American Bridge Co.; this award was noted last week as involving 6000 tons.

6000 tons, section of Nassau street subway, New York, reported awarded through Moranti & Raymond, to American Bridge Co.

3500 tons, United States Appraisers stores, Varick street, New York, to McClintic-Marshall Co.

3200 tons, building for Tebbetts & Garland, West Washington street, Chicago, to McClintic-Marshall Co.

1300 tons, Milwaukee county general hospital at Wauwatosa, Wis., to Worden-Allen Co.

1200 tons, transmission towers, Cleveland Electric Illuminating Co., Cleveland, to Blaw-Knox Co.

1000 tons, bridgework for Texas & Pacific railroad in Louisiana, to Missouri Bridge & Iron Co.

900 tons, apartment, Baltimore, to local fabricator.

750 tons, steel piling, Missouri Portland Cement plant, Prospect Hill, St. Louis, to Laclede Steel Co.

650 tons, stone finishing plant at Rockwood, Ala., to Ingalls Iron Works Co.

600 tons, Presbyterian hospital, Newark, N. J., to Goeller Construction Co.

560 tons, Brooklyn Central library, Brooklyn, N. Y., to Fort Pitt Bridge Works.

520 tons, manufacturing building in Brooklyn, N. Y., through J. G. White Construction Co., to McClintic-Marshall Co.

500 tons, highway bridge, northern New Jersey, reported awarded through Clenente Contracting Co., 103 Park avenue, New York, to unstated fabricator.

485 tons, for Miriam Osborn home, Harrison, N. Y., to McClintic-Marshall Co.

450 tons, bridges for International railways of Central America, to Shoemaker Bridge Co.

400 tons, bridge for Reading Co. over Raritan canal, N. J., to Bethlehem Steel Co.

400 tons, bridge over Des Moines river at Boone, Iowa, to Pittsburgh-Des Moines Steel Co.

340 tons, theater, Reading, Pa., to McClintic-Marshall Co.

300 tons, postoffice, Akron, O., to Berger Iron Works.

300 tons, St. Joseph's academy, Riverside drive, Cleveland, through W. J. Schirmer Co., general contractor, to National Iron & Wire Co.

300 tons, miscellaneous work, no one job reaching 100 tons, Pittsburgh and nearby districts, to Pittsburgh Bridge & Iron Co.

236 tons, building for Huff Airplanes Inc., Perth Amboy, N. J., to unnamed fabricator.

200 tons, cells for San Quentin prison, San Quentin, Calif., to Palm Iron Works.

200 tons, including two factory buildings at Mansfield, O., and Y. M. C. A. building at Newell, Pa., to Guibert Steel Co.

200 tons, two Ohio state highway bridges, Woodsfield and Langsville, O., to Pittsburgh-Des Moines Steel Co.
200 tons, bus terminals, Fields Corner section, Dorchester, Boston, to Boston Bridge Works Inc.
190 tons, freight house for Chicago & Eastern Illinois railroad, Chicago, to McClintic-Marshall Co.
176 tons, school No. 9, Buffalo, through M. B. Parker Construction Co., Cleveland, general contractor, to Kellogg Structural Steel Co.
150 tons, extension to cotton mills, Comer interests, Mignon, Ala., to Ingalls Iron Works Co.
110 tons, including buildings in Dayton, O., and Detroit, and 60 tons for plant of Massillon Steel Casting Co., Massillon, O., to Massillon Bridge & Structural Co.
100 tons, including 70 tons for Phillis Wheatley association home addition, Cleveland, to National Iron & Wire Co.
100 tons, mix calcimine building for National Carbon Co. at Fostoria, O., to McClintic-Marshall Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

7500 tons, city water works office building, Detroit.
2500 tons, Book garage building, Detroit.
2500 tons, commercial building for City College of New York, Twenty-third street and Lexington avenue, New York.
2000 tons, bridges for Boston & Maine railroad; bids asked.
1600 tons, Duquesne viaduct, Allegheny county; bids close Dec. 14.
1500 tons, building for National Tube Co., Pittsburgh, location unidentified.
1400 tons, Bricken apartment, Eighty-eighth and Park avenue, New York.
1328 tons, Eighth street viaduct, Cincinnati; bids in Dec. 9.
1240 tons, postoffice garage, Boston; unidentified New York contractor low on general contract.
1200 tons, Famous Players-Lasky theater, Toledo, O.; Lundoff-Bicknell Co., Cleveland, to buy steel this week.
1200 tons, John Hay senior high school, Cleveland; W. J. Schirmer Co., general contractor, to buy steel this week.
1200 tons, bridgework for Chicago, Burlington & Quincy railroad; bids being received.
1120 tons, Mansion theater, New York; bids still being taken.
1100 tons, Pennsylvania railroad transmission towers; Lehigh Structural Steel Co. low bidder.
1000 tons, Babies hospital, Columbia university medical unit, New York; Marc Eidlitz & Son, general contractors.
1000 tons, bridge at San Francisco bay, San Francisco; bids being received.
1000 tons, Sterling library, Yale university, New Haven, Conn.; Marc Eidlitz & Son, general contractors.
900 tons, apartment, Union and Leavenworth streets, San Francisco; bids being taken.
900 tons, Eighth street viaduct, Seattle; general contract to J. A. McEachern Co.
800 tons, Yankee stadium addition, New York; Osborne Engineering Co., Cleveland, engineer, taking bids.
700 tons, apartment, West End avenue and Eightieth street, New York; bids asked.
600 tons, bridge for Lawrence county, Monaca, Pa.; bids close Dec. 12.
500 tons, First National bank building, Camden, N. J.; bids asked.
500 tons, theater, Bronx, New York; bids asked.
450 tons, apartment, Montgomery street, Brooklyn, N. Y.; bids asked.
450 tons, theater, Philadelphia; bids asked.
400 tons, Medical-Dental building, addition, San Francisco; bids in.
200 tons, factory, 150th street and East river, New York.
200 tons, North Braddock, Pa. high school; bids being compiled.
100 tons, school, Dayton, Pa.; bids being compiled.
100 tons, postoffice, Bellevue, Pa.; bids about to be asked.
Unstated tonnage, 24-story Lawyers' building, Chicago; Lundoff-Bicknell Co., Cleveland, taking bids.
Unstated tonnage, large addition to Chevrolet service station, West Fifty-fifth street, New York; Albert Kahn, Marquette building, Detroit, architect.

Concrete Bars

Lettings of Past Week Aggregate Only Fair Total but Inquiries Taper Off

ACCUMULATION of a few large lettings in the past week made a fair total in the concrete reinforcing bar market. Included in awards were 1500 tons for a bridge in Virginia and 600 tons for a hotel addition at St. Louis. Work in prospect for immediate letting is encouraging but inquiries for closing in the late winter months are slow in appearing. Prices are firming.

REINFORCING BAR PRICES, PAGE 1438

New York, Dec. 6.—A disposition exists here to advance the mill price on concrete reinforcing bars for mill shipment to 1.80c, base, Pittsburgh. The current market now may be quoted at 1.80c to 1.85c, base, Pittsburgh, and it is believed lower than 1.80c has disappeared. Prices on concrete reinforcing bars for shipment out of local stocks range from 2.75c to 2.90c, base, delivered locally. The largest letting here involves 1500 tons of bars for the James River bridge, to be furnished by Jones & Laughlin Steel Corp. Foreign bars are to be furnished for a bridge in New Jersey requiring 600 tons.

Pittsburgh, Dec. 6.—Concrete bar awards of late have not been numerous except on small tonnages. Most projects to come up between now and Dec. 31 involve small amounts, the tendency on larger jobs being to postpone activity until spring. While some fabricators' contracts with the mills are on a lower basis than 1.80c, the present firm minimum, this tonnage is to be taken out by Dec. 31. Some first quarter contracts are being entered at 1.80c.

Buffalo, Dec. 6.—Little new inquiry is out for reinforcing bars. Operation of works producing this material has been reduced in proportion to the drop in business. Sellers look for an upturn after the holidays.

Cleveland, Dec. 6.—Although awards in the concrete reinforcing bar market are few and small, prospective business is heavy. Sewer work at Akron, taking about 1200 tons, is to be placed soon. Sewage plant work at Dayton, Elyria and Oxford, O., will require about 3000 tons. Other attractive projects are in sight. New billet bars are stiffening to 1.80c, Cleveland and Pittsburgh, for fourth quarter sales. Keen competition on large projects continues, however, with reports of cutting to $8 a ton. Rail steel is untested at 1.65c to 1.75c, mill.

Chicago, Dec. 6.—Billet steel reinforcing bar dealers are maintaining a range of 2.30c to 2.55c for the ordinary run of business, but attractive tonnages go at 2.15c to 2.20c. Rail steel bars, while firmer, do not show appreciable strength and are moving at 1.80c to 1.85c. A 13-story hotel at Chestnut street and Michigan boulevard, Chicago, took 450 tons. Chicago building permits for November show a decrease of 18 structures, and an increase of $2,377,400, or 9.48 per cent, compared with October.

Awards Compared

	Tons
Awards this week	3,990
Awards last week	6,111
Awards two weeks ago	6,825
Awards this week in 1926	2,595
Average weekly awards, Nov.	8,074
Average weekly awards 1927	5,664
Total awards to date, 1926	312,765
Total awards to date, 1927	275,890

CONTRACTS PLACED

1500 tons, James river bridge, between Norfolk and Newport News, Va., to Jones & Laughlin Steel Corp., through Turner Construction Co.
600 tons, Jefferson hotel addition, St. Louis, Laclede Steel Co.
600 tons, bridge between Ocean City and Longport, N. J., through Frederick Snare Corp., 400 tons going to Concrete Steel Co.
200 tons, Missouri Portland Cement plant, Prospect Hill, St. Louis, to Laclede Steel Co.; also 750 tons of sheet piling.
200 tons, Grove street wharf, Oakland, Calif., to Frederick Steel Co.
150 tons, viaduct at Bellingham, Wash., to Pacific Coast Steel Co.
150 tons, sewage disposal plant, Wildwood, N. J., to Concrete Steel Co.
150 tons, including 100 tons for Argo viaduct, Seattle, to Pacific Coast Steel Co. and highway work in Grays Harbor county to Northwest Steel Rolling Mills.
140 tons, Fieldston school, Bronx, New York, to National Bridge Works.
100 tons, building for American Bulb Co., Chicago, to Concrete Engineering Co.
100 tons, Hazlett building, Philadelphia, to Concrete Steel Co.
100 tons, garage, Addison street, Berkeley, Calif., to Gunn, Carle & Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

3668 tons, Eighth street viaduct, Cincinnati; bids in Dec. 9.
1180 tons, sewer work in conjunction with

sewage disposal plant, Akron, O.; Bourne-Fuller Co. low bidder.
600 tons, Taylor, Robey and Clark street bridges over Chicago river, Chicago.
500 tons, sewage treatment works for Sanitary district of Chicago.
500 tons, 1928 requirements of state road commission for highway work, Utah; Western Steel Co., low bidder.
300 tons, John Hay senior high school, Cleveland; W. J. Schirmer Co., general contractor, to buy steel this week.
280 tons, Shawmont school, Philadelphia.
250 tons, General hospital, Kittanning, Pa., bids about to be asked.
200 tons, warehouse for Point Improvement Co., Pittsburgh; Hunting-Davis-Dunnels Co., architects.
200 tons, school, Atlantic City, N. J.
200 tons, Southern Bookbinding Co. building, Philadelphia.
200 tons, first unit of White House crossing, railroad grade elimination work, Cleveland territory, through Cuyahoga county commissioners; bids in Dec. 28.
162 tons, Los Angeles county, Los Angeles; Soule Steel Co. low bidder.
150 tons, Barnes, Dunbar and Miller grade schools as well as senior high school for Fairmont, W. Va., William B. Ittner, St. Louis, architect; bids being taken by Fairmont board of education.
150 tons, First National bank, Camden, N. J.
150 tons, Fairview school, Altoona, Pa.; Hunter & Caldwell, architects; bids close Dec. 19.
120 tons, pathological building for University hospitals group, Cleveland; bids in Dec. 9.
100 tons, three grade schools in Mifflin township, Homestead Park, Pa., Homeville, Pa., and Lincoln Place; A. G. Wickerham, architect; bids being asked.
100 tons, Standard Garage Co., Greensburg, Pa.; postponed until next spring.
100 tons, recreation building, Penn State college, State College, Pa.; bids closed Dec. 5.
100 tons, dormitories, etc., Bethany college, Bethany, W. Va., Albert Thayer, New Castle, Pa., architect; bids about to be asked.
100 tons, three jobs at Woodlawn, Pa., Harris store, bids close Dec. 12; apartment for Abram Joseph, architect Frank Foulks, New Castle, Pa.; Orthodox church and school, bids about to be asked.
100 tons, administration building, Boys' Training school, Morganza, Pa., Erick, Fisher & Woods, architects; bids about to be asked.
100 tons, hospitals at Johnstown, Pa., and Ellwood City, Pa.; bids about to be asked.
100 tons, St. Joseph's academy building, Riverside drive, Cleveland; W. J. Schirmer Co., general contractor, to buy steel this week.

Coke Prices Are Easier

(*Concluded from Page* 1440)

New Jersey, equivalent to $9.59 to $10.77 delivered at Newark and other northern New Jersey consuming points.

Chicago, Dec. 6.—By-product foundry coke is to continue unchanged, for contract, at $9, ovens, and $9.50, delivered in Chicago switching district. Most users are slow to contract for more than first half.

Cincinnati, Dec. 6.—Demand for foundry coke shows some improvement. Certain automotive manufacturers are revising specifications to higher tonnages. Prices are steady.

St. Louis, Dec. 6.—The recent cold spell has had a beneficial effect on the domestic coke trade, but no change has occurred in the dull conditions in metallurgical coke. Mills and foundries are well supplied. The movement of industrial coke continues satisfactory.

Birmingham, Ala., Dec. 6.—Local foundries are placing spot orders for coke. This grade is steady at $5. base, and much coke is moving. Nearly all by-product ovens here are in operation.

Rails, Cars

Rail Inquiry Continues Heavy at Chicago—Equipment Showing More Signs of Life

RAIL business in prospect at Chicago totals 100,000 tons, most of which is to be let soon. Equipment is becoming more active, with Chicago & North Western placing 1050 cars and Chicago, St. Paul, Minneapolis & Omaha 250. Baltimore & Ohio is reported planning purchase of 2000 bodies and letting 2000 seventy-ton hoppers. Southern seeks 2400 cars and Texas & Pacific 900.

RAILROAD TRACK MATERIAL PRICES, PAGE 1438

New York, Dec. 6.—Railroad equipment demand is showing further improvement. Domestic freight car orders for November showed a slight improvement as compared with October, 861 reported placed. This total included 850 cars for Norfolk & Western, placed just before the close of the month. A comparative statement follows:

Total 11 mos.	45,145
November	861
October	561
September	357
August	856
July	1,970
June	7,115
May	5,100
April	3,350
March	4,630
February	5,960
January, 1927	14,385
December	8,990
Total, 11 mos.	54,425

Baltimore & Ohio is expected to enter the market this month for 2000 steel car bodies and is contemplating buying 2000 seventy-ton hoppers.

Pittsburgh, Dec. 6.—A fair number of light rail orders are being booked by various makers all at a $36 base price.

Some standard spike makers have decided that there is no profit in spikes at 2.70c and have announced a 2.80c minimum. This may become more general as demand improves. Small spikes are quoted at 2.50c minimum. No change has taken place in the tie plate price, which continues quoted at 2.25c.

Chicago, Dec. 6.—Inquiry for standard steel rails totals 100,000 tons, some of which may be placed immediately. Chicago, Milwaukee & St. Paul has distributed, according to report, 50,000 tons, of which 40,000 tons went to Illinois Steel Co. and 10,000 tons to Inland Steel Co. Missouri Pacific may buy shortly. Grand Trunk has awarded 7000 tons to Illinois Steel Co., and 2500 tons to Inland Steel Co. Two orders for light rails amounted to 1000 tons, this buying showing an increase over recent weeks.

Southern Pacific is reported to have placed 70,575 tons of rails.

CAR ORDERS PLACED

Baltimore & Ohio, 13 gasoline-electric rail motor cars, to J. G. Brill Co.

Chicago & North Western, 250 gondola cars to Siems-Stembel Co., in addition to 500 hopper bodies divided between Illinois Car & Mfg. Co. and Standard Steel Car Co., and 250 gondolas and 50 cabooses to Standard Steel Car Co. and American Car & Foundry Co., respectively. 100 gondolas to American Car & Foundry Co. also 5 gasoline-electric motor cars to Pullman Car & Mfg. Corp. and 100 caboose underframes to Illinois Car & Mfg. Co.
Chicago, Burlington & Quincy, 25 gasoline-electric rail motor cars, to Pullman Car & Mfg. Corp.
Chicago, St. Paul, Minneapolis & Omaha, 250 gondolas, to Standard Steel Car Co.
Fruit Growers Express, 60 steel underframes to the Pennsylvania Car Co.
South Africa railway, 200 gondolas, to Cie. Centrale de Construction Haine St. Pierre, Belgium.

LOCOMOTIVE ORDERS PLACED

Chesapeake & Ohio, contract for the repair of 12 locomotives at a cost of about $300,000, to Newport News Shipbuilding & Dry Dock Co.
Great Northern, four locomotives, to its own shops.
Reading Co., 60-ton oil-electric locomotive, to American Locomotive Co. General Electric Co. and Ingersoll-Rand Co., who will cooperate in construction.

CAR ORDERS PENDING

New Inquiry and Developments on Projects Previously Reported

Argentine State railways, 700 box, flat and tank cars, bids asked; this includes 200 freight cars previously noted as figured.
Atlantic Coast Line, 78 underframes; bids asked.
Bangor & Aroostook, six cabooses.
Chicago & North Western, 500 additional hopper cars; bids asked.
H. C. Frick Coke Co., 640 coke cars; bids asked.
Lehigh & New England, six cabooses.
Louisville & Nashville, 1250 gondolas, 200 mill gondolas, 200 stock, 200 auto, 300 box, 16 miscellaneous coaches; formal inquiry out. Previously noted as 2250 cars.
Southern, 1000 hoppers, 1000 box, 200 steel or composite ballast cars, 200 caboose cars, also 500 gondola underframes, and 25 coaches, mostly baggage-mail.
United States navy, bureau of aeronautics, one to five tank cars, to carry helium gas; bids asked.
Texas & Pacific, 900 freight cars, 500 gondolas, 200 automobile and 200 flat cars; inquiry out.
Woodward Iron Co., ten steel ore cars.

LOCOMOTIVE ORDERS PENDING

Boston & Maine, 25 to 30 locomotives; bids asked.
Midland Valley, four locomotive tenders; bids asked.
Southern, 38 locomotives; contemplated.

The United States exported 347 freight cars in September, sending 70 to Colombia and 50 to Argentina.

Wire

Nail Extras and Carload Discounts Cause No Increase in Buying by Consumers

PROMULGATION of a new card of extras on nails, carrying provision for a discount on carloads, has not stimulated buying. This is attributed to approach of inventory. Less building as winter arrives is a cause of less buying. Prices are firmer and being maintained better than formerly. Low-priced contracts will expire at the year's end.

WIRE PRICES, PAGE 1438

Chicago, Dec. 6.—While the new card of wire nail extras subjects carload sales to jobbers to a 10 per cent discount, buying has not been greatly stimulated. This is due in part to the approaching inventory season when stocks are being reduced. A seasonal slowing in the building situation in the West undoubtedly is the chief deterrent in sales of wire products. Agricultural demand continues slightly ahead of manufacturing requirements. While producers are seeking to put into effect $2.60 on nails in view of the withdrawal of the old quotations on extras, most business is going at $2.55. Plain wire is quoted at 2.45c, Chicago or western mills.

New York, Dec. 6.—New prices on nails and observance of $2.40 as the minimum on plain wire date back to Dec. 1 and now are being applied to all new business. At least one important maker has notified its customers that lower prices at which business was booked prior to Dec. 1 will expire Dec. 31 and that beginning Jan. 1 no shipments will be billed at less than 2.40c, base, Pittsburgh, for plain wire, or $2.55, base, Pittsburgh, plus the new extras for nails.

An important angle of the wire market which has been affected by firming of plain wire, is a better price on screw stock. This product while generally quoted at 2.20c, base, Pittsburgh, has sold as low as 2.00c. Makers now are refusing to take business lower than 2.20c, and all commitments at lower prices which were entered previously are due to expire Dec. 31.

Buffalo, Dec. 6.—Buffalo wire works are reported to have received orders for release of large tonnages of wire for the new Ford car. Shipments will be made immediately. Specifications for wire cloth and netting, for shipment after Jan. 1, also are coming in. Considerable welded mesh is being shipped to the West coast although eastern demand has slowed up with arrival of cold weather. Prices are firm.

Pittsburgh, Dec. 6.—Faced with a higher base price on wire nails for first quarter, namely $2.55, and higher nail extras of $1 to $4 per ton (although some extras were reduced to equalize conditions) jobbers have been increasingly active in furnishing specifications on low priced contracts. They are given until Dec. 31 to furnish shipping instructions on which no holdups will be allowed, so that by late January all present low priced tonnage showed have disappeared. While on some of this nothing less than $2.45 was developed, nothing lower than 2.35c was uncovered in wire in the recent competitive market.

Bolts, Nuts, Rivets

First Quarter Requirements at Unchanged Price

NUT AND BOLT PRICES, PAGE 1438

New York, Dec. 6.—First quarter contracts are being sent out by bolt and nut makers on the same price basis which has prevailed in recent months, 70 off for large buyers and 60 off for small buyers. Eastern bolt and nut makers are operating about 50 per cent. However, there has been some improvement in bookings, eastern railroads having ordered more bolts and nuts the past month than in any other month in the last half.

Chicago, Dec. 6.—First quarter contracting for bolts, nuts and rivets is expected to be under way by the latter part of this week. It is indicated now that the contract price is to continue at 70 per cent off list for bolts and nuts and 2.85c, Chicago, for large structural rivets, although it is understood these prices have not been definitely established for first quarter business. Specifications continue steady. Farm implement demand shows no lessening. Fourth quarter specifications, it is expected, will represent about the same proportion of contract obligations as did third quarter specifications.

Pittsburgh, Dec. 6.—Nut, bolt and rivet contracts for first quarter are being written at 70 off for the two former and 2.75c for the latter. Contract customers are not showing haste but a few have returned their blanks. Plant operations now average slightly above 50 per cent. Specifications against quarterly arrangements are coming in steadily.

Cleveland, Dec. 6.—First quarter contracts for bolts and nuts will carry the current discount of 70 per cent off list. Structural rivet contracts also will be unchanged from the present card of 2.75c. New contracts will be sent out soon. Specifications for bolts and nuts still are seasonally high, with an upturn in sight for first quarter. Rivet demand fails to show improvement.

Strip Steel

Competition for Business Brings Out Low Prices

STRIP PRICES, PAGE 1438

Pittsburgh, Dec. 6.—The hot strip market still is trying to find itself. Whatever price appears to be needed to take the business under consideration seems to be the figure made. Prices below 1.90c have appeared on hot strips, the full range being 1.85c to 1.95c. Hoops and bands are held more firmly, namely at 2.20c, and some makers even claim that on the small business they are receiving they have not gone below 2.30c.

Cold strip makers have not gone below 3.00c on three tons or less at a time, which would make the carload base on the recent quantity differential 2.75c, and some claim they have not had to go below 3.15c.

Cleveland, Dec. 6.—Improvement in strip steel is noticeable but mostly confined to sentiment. Buyers are indicating willingness to commit themselves for future requirements for the first time this year. No development in the stabilization of prices was noted. On less than 6-inch hot strip, 2.10c to 2.20c, Pittsburgh, continues common, while on 6 to 12-inch, as low as 1.75c still is available for attractive tonnages. Cold finished is inactive in demand, but is fairly stable at 2.75c for lots of 3 tons and over, while for 1 to 3-ton quantities, 3.00c is quoted.

Cold Finished Steel

New Price and Extras Now on Firm Basis

COLD FINISHED PRICES, PAGE 1438

Pittsburgh, Dec. 6.—A cold bar finisher at Beaver Falls announced Nov. 30 that as far as it was concerned prompt and first quarter tonnage is now on a 2.20c minimum basis, with a new card of quantity extras applying. Since that date the group of manufacturers adopting this policy has gradually widened until it is universal. A decided upturn in tonnage is noted and specifications have a better tone. Bookings in November were 10 to 15 per cent larger than in October, but December may not grow much over the November rate. However, in contrast with January this year and in 1926, next month seems destined to be a lively month. Operations have expanded a trifle and the general average is nearer 60 per cent.

Nonferrous Metals

Prices Continue to Rise—Buyers' Skepticism of Stronger Market Fading—Export Business Is Important Factor

Prices of the Week, Cents a Pound

	Copper Electro delivered	Copper Lake delivered	Copper Casting refinery	Straits Tin New York Spot	Straits Tin New York December	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Nov. 30	13.87½	13.92½	13.50	58.75	58.50	6.45	6.22½	5.85	24.75	10.80	35.00
Dec. 1	13.87½	14.00	13.50	59.00	58.87½	6.55	6.32½	5.82½	24.75	11.00	35.00
Dec. 2	14.00	14.07½	13.75	58.87½	58.75	6.55	6.35	5.85	24.75	11.25	35.00
Dec. 5	14.00	14.15	13.87½	59.12½	59.00	6.55	6.37½	5.90	24.75	11.75	35.00
Dec. 6	14.07½	14.15	13.87½	59.25	59.12½	6.60	6.37½	5.85	24.75	11.50	35.00

NEW YORK, Dec. 6.—The nonferrous metal markets are active and prices continue to rise. Much skepticism regarding the stronger prices has been evident among consumers, but this attitude shows increasing evidence of fading as the rise continues. Most of the buying still is for shipment within two months. Export business is a big factor in the strength of lead and copper.

Brass and copper mill products prices were marked up ¼ cent last week, as copper reached 14.00c, Connecticut, and now the base metal is going above that level. A fair amount of buying has been done but users of products have been conservative, not purchasing as rapidly on the rise as they sometimes do. This fact is interpreted to mean good support for the market because of the further buying that will be necessary.

Copper—Copper sold at 13.87½c and then at 14.00c, Connecticut, and ⅛ to ¼ cent more in the Midwest, compared with 13.75c in the last week of November. The export price meanwhile has gone from 14.05c to 14.35c c.i.f. European ports. Not a great deal of metal has been sold for February in the domestic market but a fair amount has been sold for export. The latter usually is bought a little farther ahead than domestic metal. November export sales were of record size and good buying has continued this month.

Zinc—Prime western metal lost a few points of its recent recovery but at 5.82½c, East St. Louis, the last of the distress metal disappeared and the market returned to 5.90c. Buying has been light and there has not been much feature to the market. The ore market is steady.

Tin—The market has been strong but prices have not changed much in the past week, being mostly around 59.00c. The spread between spot and futures has been unusually narrow, with interest mostly in the latter. Users have bought freely for first quarter, and some later business has been done but it is mostly speculative. November statistics showed a cut in stocks here on account of light arrivals, despite light deliveries. However, world statistics turned out strong, even with large shipments from the Far East, as deliveries in Europe were large.

Aluminum—Some business is being done for shipment early next year. Prices are not strong but they are unchanged. The use of aluminum pistons in Ford cars has attracted attention and will aid the market a little.

Nickel—Prices are unchanged and the market appears to be in fairly good position. The small amount of nickel-bearing scrap on the market favors the purchase of new metal.

Old Metal—Scrap and secondary metals are strong on account of strength in new metals. These materials are more active also.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
Yellow brass (high)	18.75
Copper, hot rolled	22.75
Lead, full sheets (cut ¼c more)	10.00
Zinc (100-pound base)	10.00
Aluminum, flat sheets, up to 10 gage, 3" to 72" wide	32.00
SEAMLESS TUBES	
Yellow brass (high)	23.62½
Copper	24.50
RODS	
Yellow brass (high, free turning)	16.50
Naval brass	19.25
WIRE	
Copper, small lots	15.50
Yellow brass (high)	19.25

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.25 to 9.50
Chicago	9.25 to 9.50
Cleveland	9.75
HEAVY YELLOW BRASS	
Chicago	6.75 to 7.00
Cleveland	7.50
ZINC	
New York	3.50 to 3.75
Cleveland	3.50
HEAVY COPPER AND WIRE	
New York	11.25 to 11.50
Boston	10.50 to 11.25
Chicago	10.00 to 10.50
Cleveland	11.50
RED BRASS BORINGS	
New York	8.25 to 8.50
YELLOW BRASS TUBING	
Cleveland	8.00
LIGHT COPPER	
New York	9.75 to 10.00
Chicago	9.25
Cleveland	10.00
LIGHT BRASS	
Boston	6.00 to 6.50
Chicago	6.25
Cleveland	5.75
ALUMINUM	
Clippings, Cleveland	17.00
Borings, Cleveland	9.00
Cast, Cleveland	12.00
Cast, Boston	13.00 to 13.50

Secondary Metals

Remelt aluminum No. 12	17.00 to 18.00
Brass ingot, 85-5-5-5	12.50 to 12.62½

Coke By-Products

Toluol Leads Demand—Sulphate May Be Wanted in January

New York, Dec. 6.—Toluol is in slightly greater demand, following increased activity in the automobile industry and a wider market for lacquers. Commercial xylol is affected in a lesser degree. Pure and 90 per cent benzols are unchanged but steady. Sulphate of ammonia is firm but the export market is dull, with Germany now dominating much foreign business. Improvement in naphthalene is not looked for until January.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contracts
Pure benzol	$0.23	.....
90 per cent benzol	0.23	.....
Toluol	0.35	.....
Solvent naphtha	0.35	.....
Commercial xylol	0.36	.....
Phenol	0.19 to 0.20	.....

Per Pound at Producers' Plants

Naphthalene flakes	0.05 to 0.06
Naphthalene balls	0.06 to 0.07

Per 100 Pounds Delivered

Sulphate of ammonia	$2.30 to $2.35

Mercury Not So Strong

New York, Dec. 6.—Quicksilver is $128 a flask. The market is steady, but some asking prices are not quite so high as recently.

Eastern Branch Is Planned

Chicago, Dec. 6.—Negotiations are in progress by the chamber of commerce of Guilford, Conn., with the Johnson Motor Co., Waukegan, Ill., manufacturer of outboard motors and marine engines, looking toward establishment of a branch plant at Guilford, it is reported.

Warehouse

Easing Off of Business Expected in Some Districts as Holiday and Inventory Season Approaches—Most Prices Holding Steady

JOBBERS in some districts are expecting December sales to slip still further from the declining October and November levels. Dull industrial buying and the approach of holidays and inventories are holding down the tonnage being sold. Prices hold steady with but few soft spots.

Reflecting the desire of buyers to hold down stocks for the inventory season, iron and steel warehouse business has dropped off in the Chicago district. Prices continue steady. The new card of wire nail extras, advancing the price on bright nails. sets up new levels for these products. It provides also a 10 per cent discount to carload buyers.

December does not hold much promise to Pittsburgh warehousemen. Inventories, holidays, etc., all will be deterrents as in former years. November was a quiet month, being under October, and the lowest month since June. Sheets have been fluctuating considerably but jobbers hope that with firming up of mill prices the situation will be bettered.

Sales of iron and steel goods by the St. Louis warehouses have declined slightly from the past several weeks, but the volume is only slightly below the seasonal average. Prices on leading commodities hold firm.

Movement of stocks out of Boston warehouses shows a slight increase. Competition remains keen and prices are subject to concessions from published lists.

Reduced sheet prices noted last week now are generally prevalent among Philadelphia jobbers and the market is fairly stable at the new levels. The new method of selling cold rolled strip and cold finished steel with quantity extras now is being observed generally here.

The new tariff on plain wire nails has reached the Cincinnati warehouses and advances of 5c to 25 cents per 100 pounds have been effected by the advance. The new price went into effect Dec. 1. No other change in prices is noted but shipments are better.

After a minor lull around the Thanksgiving holiday, Buffalo warehouses report iron and steel sales again on the up grade, with probability of a continued steady demand until a week or ten days before Christmas.

Cleveland warehouse interests report the first week in December as continued the rate of purchases of November. November sales generally approximated those of October, and considering the holidays and shorter business month, on a daily average basis would have exceeded that month. Prices are firmer in the outlying territory than in a long time, competition from Pittsburgh jobbers being less important.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Los Angeles	3.40c
New York	3.24c
Philadelphia	2.50c to 3.00c
Pittsburgh	2.85c to 2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.06c

IRON BARS

Baltimore	2.60c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York	3.24c
Philadelphia	2.50c to 3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.06c

REINFORCING BARS

Baltimore	2.80c to 3.31c
Boston	3.265c to 3.50c
Buffalo	2.75c
Cincinnati	3.00c
Cleveland	2.20c
Detroit	3.00c
Ft. Worth	3.75c
*Los Angeles	3.05c
**Los Angeles	3.30c
New York	2.95c
Philadelphia	2.50c to 3.00c
Pittsburgh	2.50c to 2.75c
*San Francisco	2.85c
**San Francisco	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c

*Carload. **Less carload.

STRUCTURAL SHAPES

Baltimore	2.60c to 3.41c
Boston	3,365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.25c
Los Angeles	3.40c
New York	3.34c
Philadelphia	2.50c to 3.00c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

PLATES

Baltimore	2.60c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.30c
Ft. Worth	4.50c
Los Angeles	3.40c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.50c to 3.00c
Phila., 3/16-in.	2.70c to 3.20c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.16c

NO. 10 BLUE ANNEALED SHEETS

Baltimore	3.20c to 3.66c
Boston, 3/16-in.	3.915c
Buffalo	3.70c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.50c
Ft. Worth	4.70c
Los Angeles	3.85c
New York	3.50c to 3.89c
Portland	4.00c
Philadelphia	3.15c
Pittsburgh	3.10c to 3.20c
San Francisco	3.75c
Seattle	4.00c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.20c to 4.56c

NO. 24 BLACK SHEETS

Baltimore	3.60c to 4.30c
Boston	5.00c
Buffalo	4.20c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.75c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles	5.10c
New York	3.75c to 4.00c
Philadelphia	4.15c
Pittsburgh	3.65c
Portland	4.90c
San Francisco	4.80c
Seattle	5.00c
St. Louis	4.45c
St. Paul	3.95c
Tulsa	4.75c

NO. 24 GALVANIZED SHEETS

Baltimore	4.30c to 5.45c
Boston	5.85c
Buffalo	5.05c
Chicago	4.80c
Cincinnati	4.90c
Cleveland	4.50c
Detroit	4.90c
Ft. Worth	5.75c
Los Angeles	5.30c
New York	4.60c to 4.70c
Philadelphia	5.00c
Pittsburgh	4.50c
Portland	5.65c
San Francisco	5.35c
Seattle	5.75c
St. Louis	5.25c
St. Paul	4.90c
Tulsa	5.55c

BANDS

Baltimore	3.40c to 4.06c
Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.65c
Ft. Worth	4.40c
Los Angeles	4.25c
New York	3.99c
Philadelphia	3.40c
Pittsburgh	3.60c
Portland	4.00c
San Francisco	4.00c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Baltimore	4.16c
Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.40c
Cleveland	3.65c
Detroit	4.15c
New York	4.49c
Philadelphia	3.65c
Pittsburgh	4.25c to 4.50c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons	Flats squares
Baltimore	4.00c	4.50c
Boston	4.05c	4.55c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	.....
New York	3.30c†	3.80c†
Philadelphia	3.25c†	3.75c†
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....
Tulsa	4.66c	5.16c

*Rounds only.
†Plus quantity extras.

COLD ROLLED STRIP

Boston, 0.100-inch, 500-lb. lots	6.00c
Buffalo	5.85c
Chicago*	6.10c
Cincinnati	7.15c
Cleveland*	5.95c
Detroit*	6.05c
New York	5.75c to 6.25c
Philadelphia	4.75c†

*Net base, straightening, cutting, boxing one ton or more.
†Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	14.00c
Iron bars, rounds	6.25c

Flats and Squares

Baltimore, New York, Phila.	6.60c

Coast Is Small Buyer

Considerable Business in Prospect for Later Bidding—
Imports Continue to Arrive

SAN FRANCISCO, Dec. 3.—(*By Air Mail*)—Steel bookings in California this week were limited to small tonnages, with one or two exceptions. Several new building projects are contemplated and much work is on architects' boards for preliminary figures. It is thought most of this will not come out for figures until after Jan. 1.

Pig Iron and Coke

Pig iron is not active and there is little improvement in foundry orders. Jobbing plants continue to operate on day to day orders. Stove and sanitary ware foundries are favored with good business. Imports of foreign coke for September totaled 2493 tons, compared with 8110 tons for the previous month. Pig iron importations in September aggregated 2026 tons, of which 1766 tons came from the British Indies. This tonnage compares with 2432 tons in August. No change in prices is noted.

The reinforcing bar market has developed no marked change. Awards totaled less than 800 tons. Among the lettings were 397 tons for Los Angeles county and 200 tons for a wharf at Oakland. Interest continues in the inquiry of the Raymond Concrete Pile Co. for 8500 tons for the Coyote Point bridge. Los Angeles county is in the market for 160 tons, bids on which have been received. September imports of bars, both mild steel and reinforcing, totaled 4822 tons, compared with 3638 tons for August. Of this total 3800 tons was shipped from Belgium. A little over 2100 tons each entered at San Francisco and Portland, the remainder going to Los Angeles and Seattle. Foreign mild steel bars are quoted at 1.60c to 1.65c c.i.f., duty paid, while concrete bars are about 1.70c. One large California consumer has just placed an order for 400 tons of mild steel bars. Out-of-stock prices on concrete bars in the San Francisco district have been exceptionally low for the past few weeks and as low as 2.20c was recently quoted. A tendency towards higher levels is noted.

The largest shape awards of the week called for 400 and 600 tons respectively for pulp plants at Port Townsend and Hoquiam, Wash., for the Zellerbach Paper Co., and were booked by the McClintic-Marshall Co. It is understood the eastern shops of the fabricator will handle the work. Pending work includes 5000 tons for the Capwell department store, Oakland, and 3000 tons for the Coyote Point bridge at San Francisco. Imports of foreign shapes during September totaled 2482 tons, compared with 3067 tons for August. The port of San Francisco received over 1600 tons of the total. Prices on foreign material range around 1.60c c.i.f. duty paid and as low as 1.58c has been quoted. Domestic material continues firm at 2.40c c.i.f.

Other Finished Material

Increased activity in cast iron pipe is noted and awards this week aggregated over 1200 tons, among which were 1082 tons for San Diego. Bids were opened this week on 952 tons for Glendale, Calif., and bids will be taken Dec. 13 for 835 tons for Burlingame, Calif. Imports of cast iron pipe during September totaled 2301 tons, compared with 4211 tons for August. Of this tonnage 1890 tons were unloaded at San Pedro. Prices are firming up somewhat although $36 a ton on 6-inch and larger has been quoted this week. Demand for standard pipe and oil country goods continues spotty.

Hardening Steel by Lead Bath Method

CO-OPERATION between industrialists and educators received an impetus at the heat treating conference held last week at Yale university. The occasion was the first formal meeting between Connecticut manufacturers and the engineering department of Yale. Nearly 400 industrialists and educators, all vitally interested in heat treating progress, attended.

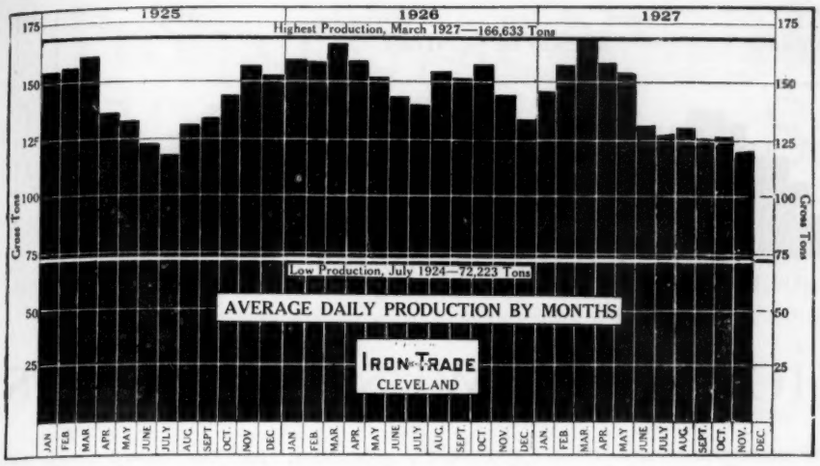
The heat treating department of the Pratt & Whitney Mfg. Co., Hartford, Conn., was described in an illustrated talk by A. H. D'Arcambal, consulting metallurgist for that company. This department was completely rebuilt about three years ago and soon will be 100 per cent electrified. The principal method of hardening is through the use of lead baths. The first electric lead bath of cylindrical type made was installed in this plant and was so successful that 20 or more have been installed since then. The equipment includes fourteen 20-kilowatt furnaces, all equipped with thermocouples and automatic temperature regulating devices. It is the usual practice to hold the lead temperature within a range of five degrees Fahr. One feature in connection with this hardening room is an automatic timer for terminating the heating period on small work such as taps. The timing device is operated by the weight of tongs which hold the piece. With such a device all the operator has to do is to insert the piece held by the tongs, let the tongs rest and turn to another furnace. At the end of the allotted period for heating, the current is automatically turned off.

In a discussion following Mr. D'Arcambal's paper many opinions about lead bath heating were brought to light. Mr. D'Arcambal is enthusiastic about the lead bath for steel treatment. He says his company buys the purest lead it can get and has no trouble with sticking and almost no pot expense. Pots which have been in service three years show no signs of wear. It is the practice to scrape down the sides of these each morning and to cover the lead bath with fresh charcoal If you keep your lead bath clean and pure, according to Mr. D'Arcambal, you will have no trouble with sticking. The pieces are immersed in the lead bath until the desired temperature is obtained and are then quenched in brine which is kept at a constant low temperature by a circulating system with a basement refrigerating plant.

Speaking of steel analyses Mr. D'Arcambal said his company now is using 18 per cent tungsten and 1.2 per cent vanadium.

The meeting was held under the auspices of the Yale university and the Connecticut State Manufacturers association. It included discussion by W. S. Scott, Westinghouse Electric & Mfg. Co., Mansfield, O.; C. H. Opsau, engineer, General Electric Co., Schenectady, N. Y.; and R. E. Halley, engineer, George J. Hagen Co., Pittsburgh.

E. Kent Hubbard, who was re-elected president of the manufacturers association, spoke of the rapid progress being made in industries in Connecticut and emphasized the value of co-operation between schools and industries. He said that through such co-operation the Yale engineering department had successfully solved several industrial problems which they could not have known about except by association with industrial plants.



Ingot Production Falls Again

DESPITE a small gain in October, production of steel ingots in November again dropped off, establishing a rate which was the lowest since July, 1925. According to statistics compiled by the American Iron and Steel institute from figures reported by companies which in 1926 made 95.01 per cent of the country's total steel ingot production, the output for November was 3,101,764 gross tons. Compared with the 3,289,013 tons of October, this was a loss of 187,249 tons. Both months had 26 working days.

Average daily production in November was 119,299 tons, which compared with the 126,500-ton daily rate of the preceding month, was a drop of 7201 tons, or 5.7 per cent. The rate was the lowest for any November since 1921, when production averaged 72,942 tons per day. One year ago, the output was 142,529 tons per day. With a production of 119,299 tons per day in November and 311 working days in the year, the indicated annual rate of production was 37,100,000 gross tons. For October the rate was 39,340,000 tons. According to the institute calculations, operations in November were at a rate of 73.47 per cent, against 77.9 per cent in October. Practical capacity is considered as 50,500,000 gross tons.

Steel Ingot Production—1926-27

95.01 Per Cent of Industry Reporting

1926	Open-hearth	Bessemer	All other	Gross Tons Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent of operation
Jan.	3,326,846	581,683	13,664	3,922,193	4,132,210	26	158,931	98.86
Feb.	3,023,829	556,031	12,818	3,592,678	3,785,051	24	157,710	98.10
March	3,590,791	635,680	15,031	4,241,502	4,468,617	27	165,504	102.94
April	3,282,435	601,037	13,652	3,897,124	4,105,799	26	157,915	98.22
May	3,201,230	516,676	10,437	3,728,343	3,927,979	26	151,076	93.97
June	3,036,162	498,764	9,441	3,544,367	3,734,153	26	143,621	89.33
July	2,911,375	526,500	12,372	3,450,247	3,634,993	26	139,807	86.96
Aug.	3,145,055	627,273	12,003	3,784,331	3,986,966	26	153,345	95.38
Sept.	3,089,240	612,588	12,660	3,714,488	3,913,383	26	150,515	93.62
Oct.	3,224,584	630,526	12,348	3,867,458	4,074,544	26	156,713	97.48
Nov.	2,915,558	592,239	9,605	3,517,402	3,705,744	26	142,529	88.65
Total 11 mos.	34,747,105	6,378,997	134,031	41,260,133	43,469,439	285	152,524	94.87
Dec.	2,788,479	493,172	8,919	3,290,570	3,466,766	26	133,337	82.94
Total	37,535,584	6,872,169	142,950	44,550,703	46,936,205	311	150,920	93.87

95.40 PER CENT OF INDUSTRY REPORTING

1927								
Jan.	3,041,233	545,690	.....	3,586,923	3,759,877	26	144,611	89.06
Feb.	3,042,232	565,201	.....	3,607,433	3,781,376	24	157,557	97.03
March	3,701,418	590,716	.....	4,292,134	4,499,092	27	166,633	102.62
April	3,340,852	565,634	.....	3,906,486	4,094,849	26	157,494	96.99
May	3,272,810	557,683	.....	3,830,493	4,015,192	26	154,430	95.10
June	2,822,477	486,047	.....	3,308,524	3,468,055	26	133,387	82.15
July	2,595,692	436,446	.....	3,032,138	3,178,342	25	127,134	78.29
August	2,805,657	505,584	.....	3,311,241	3,470,903	27	128,552	79.17
Sept.	2,611,976	471,455	.....	3,083,431	3,232,108	26	124,312	76.56
Oct.	2,641,920	495,798	.....	3,137,718	3,289,013	26	126,500	77.90
Nov	2,477,253	481,830	.....	2,959,083	3,101,764	26	119,299	73.47
Total 11 mos.	32,353,520	5,702,084	.....	38,055,604	39,890,571	285	139,967	86.20

Figures for 1927 exclude crucible and electric ingots. It has not been found feasible to secure monthly figures from a sufficient proportion of producers to represent fairly the production of steel ingots by these processes.

Pig Iron Market More Active This Week

(*Concluded from Page* 1439)

during the week was 500 tons which went to a Cleveland furnace at $16.25, base, Cleveland. A sale by local dealers was reported from Indianapolis, involving 3500 tons, but confirmation is lacking.

St. Louis, Dec. 6.—Sales of pig iron have picked up considerably. The total reported in the past week was approximately 25,000 tons. Several tentative inquiries call for substantial tonnages. The St. Louis Gas & Coke Corp. booked 23,000 tons, the bulk of which is for a steelmaker in this district, to be shipped this year. Purchases by foundries were well distributed. Total sales of pig iron in this district in November made the best showing since early in the year. This also is true of shipments. Indications point to substantial purchasing following Jan. 1. Prices are steady. The leading local producer is asking $19.50 to $20, f.o.b. Granite City.

Birmingham, Ala., Dec. 6.—Pig iron is being booked in small quantities for first quarter. The only price that is mentioned, however, is $16, base, Birmingham, which furnace interests have said applies only to the small lots for December delivery. No announcement has been made as to prices for next quarter. Foundries are reducing their stocks and larger buying is expected after Jan. 1.

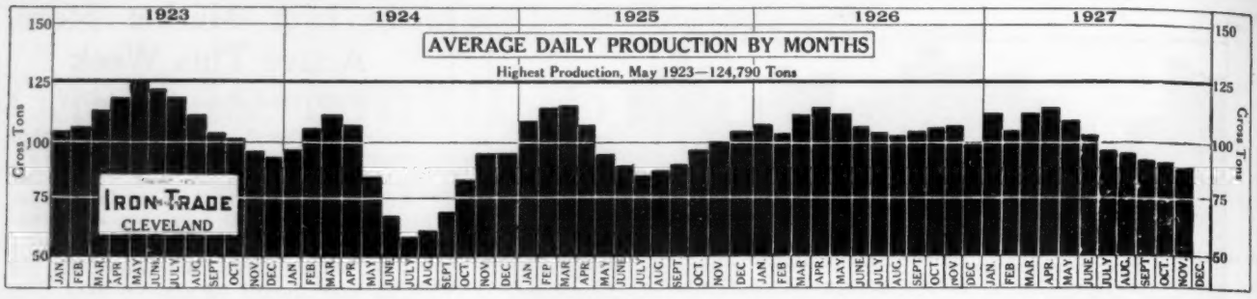
Chicago, Dec. 6.—Spot buying of pig iron to tide users over December is more active. Some sellers report considerable activity in one and several carload orders. Additional buyers are placing contracts quietly for first quarter. Some estimates are that one-third of first quarter tonnage has been placed. The last of the season's boat iron has been sold and the base price of foundry iron, $18.50, appears firm, with outside iron not now competing. Bookings for first quarter have been at the current price.

Philadelphia, Dec. 6.—The pig iron market is somewhat easier. The price, $19, base, eastern Pennsylvania furnace, is more general than $19.50. In only one recent instance has $19 been shaded, and that transaction involved exchange of pig iron for ore. The minimum appears to be $19. It is learned that the basic business of the week before last involved about 10,000 tons more than reported at the time. Demand now is quiet. Large consumers are not showing interest in first quarter.

Henry V. Wille is Dead

Philadelphia, Dec. 6.—Henry V. Wille, consultant vice president in engineering and metallurgy for Baldwin Locomotive Works, died at Philadelphia Nov. 29, aged 59.

United States exports of electric railway cars in September totaled 15, of which Mexico received 14 and Colombia two.



Iron Production Is Lowest for Years

FINAL figures on coke pig iron production in the United States in November reveal the total to be slightly larger than the estimated output published last week, but still November was the lowest month since August, 1925, and the lowest November since 1924. In addition, the number of operating furnaces on the last day of the month was two less than was indicated by early reports. With the demand for pig iron continuing to improve, it seems probable that blast furnace operations will turn upward before the year closes.

MONTHLY PRODUCTION

	1927	1926	1925
January	3,101,346	3,319,789	3,372,207
February	2,940,604	2,923,850	3,214,067
March	3,482,107	3,458,171	3,571,422
April	3,424,377	3,438,805	3,211,235
May	3,391,067	3,477,820	2,933,907
June	3,089,726	3,232,478	2,679,045
July	2,954,625	3,224,663	2,665,262
August	2,950,671	3,200,723	2,707,171
September	2,782,500	3,163,269	2,725,885
October	2,812,015	3,334,206	3,017,889
November	2,661,863	3,237,992	3,023,257
Total 11 mos.	33,590,904	36,011,766	33,121,347
December	.....	3,089,175	3,249,057
Grand total	.....	39,100,941	36,370,404

Active Blast Furnaces

	In blast	Total	Per Cent
November	171	359	47.7
October	174	361	48.2
September	181	362	50.0
August	189	362	52.2
July	190	362	52.5
June	198	362	54.7
May	211	363	58.1
April	221	364	60.7

Total production for November was 2,661,863 gross tons, which compared with the 2,812,015-ton output of the previous month, was a decrease of 150,152 tons. November had 30 days, against 31 in October. Average daily production for the month was 88,728 tons, a rate which was 1982 tons per day, or 2.19 per cent, less than the 90,710-ton daily rate of October.

On the last day of the month 171 of the country's 359 serviceable blast furnaces were in operation. This represented an activity of 47.7 per cent. On Oct. 31, active stacks totaled 174, out of 361, or 48.2 per cent. During November no merchant stacks were blown in and 3 were blown out or banked. Of the nonmerchant class, 2 were blown in and 2 blown out.

With the tearing down and scrapping of the two blast furnaces of the Dunbar Corj., at Dunbar, Pa., the country's list of serviceable units has been reduced from 361 on Oct. 31 to 359 on Nov. 30. These two furnaces had an annual capacity of 180,000 gross tons.

Furnaces blown in during November were: In Pennsylvania: Clairton No. 3, Carnegie Steel Co. In Illinois: South Works E, Illinois Steel Co.

Stacks blown out during the month were: In Ohio: Canton, Central Alloy Steel Corp. In Pennsylvania: Coatesville C and Bethlehem G, Bethlehem Steel Co.; Claire, Edmund W. Mudge Co. In Tennessee: Rockdale, Tennessee Products Corp.

AVERAGE DAILY PRODUCTION

	1927	1926	1925	1924	1923
Jan.	100,043	107,039	108,781	97,273	104,136
Feb.	105,021	104,423	114,788	105,987	106,925
Mar.	112,326	111,554	115,207	111,787	113,664
Apr.	114,146	114,627	107,041	107,537	118,210
May	109,388	112,187	94,642	84,515	124,790
June	102,991	107,749	89,301	67,427	122,262
July	95,311	104,021	85,976	57,531	118,860
Aug.	95,183	103,219	87,328	60,741	111,254
Sept.	92,750	105,442	90,862	68,454	103,917
Oct.	90,710	107,555	97,351	79,419	101,375
Nov.	88,728	107,933	100,775	83,832	96,373
Dec.	.....	99,651	104,808	95,367	93,952
Ave.	100,571	107,126	99,645	84,908	109,659

DIVISIONS OF PRODUCTION

1926	Merchant	Non-merchant	Spiegel	Ferro-manganese	Other ferro
Jan.	724,946	2,594,843	7,746	32,924	1,607
Feb.	622,121	2,301,729	7,084	22,309	1,464
Mar.	733,321	2,724,850	7,339	24,604	1,942
April	779,310	2,659,495	7,051	24,134	1,593
May	797,539	2,680,281	6,990	22,979	1,704
June	734,823	2,497,655	5,864	25,378	.....
July	758,166	2,466,497	3,699	26,873	.....
Aug.	682,017	2,518,706	4,372	23,557	.....
Sept.	684,420	2,478,849	2,925	25,218	.....
Oct.	712,872	2,621,334	6,295	28,444	516
Nov.	710,362	2,527,630	7,656	31,903	.....
Dec.	743,612	2,345,563	7,140	31,727	.....
Tot.	8,683,509	30,417,432	74,070	319,510	8,826
1927					
Jan.	745,766	2,355,580	7,486	32,844	.....
Feb.	642,804	2,297,800	7,045	24,560	.....
Mar.	762,354	2,719,753	7,650	27,833	.....
April	735,385	2,688,992	12,871	24,786	.....
May	701,582	2,689,485	9,945	28,733	1,668
June	714,268	2,375,458	19,253	31,267	1,609
July	736,707	2,217,919	19,591	26,394	1,758
Aug.	665,101	2,282,570	11,650	21,270	1,595
Sept.	651,246	2,131,254	16,027	20,675	1,707
Oct.	688,880	2,123,135	16,962	18,634	1,294
Nov.	652,237	2,009,626	17,367	17,851	.....

NOVEMBER PIG IRON

	No. of stacks	Number in blast last day of month Nov.	Oct.	—Total tonnage made— Merchant	Nonmerchant	—Totals— Nov.	Oct.
Ohio	70	37	38	136,412	495,649	632,061	674,926
Pennsylvania	120	53	55	135,713	664,320	800,033	877,644
Alabama	34	18	18	103,008	105,624	208,632	212,894
Virginia	15	1	1	7,357	.....	7,357	7,352
New York	25	15	15	66,003	130,120	196,123	216,674
New Jersey	3	0	0	.....	.....	.....	.....
Illinois	26	16	15	113,035	169,865	282,900	281,673
Colorado	5	2	2				
Indiana	18	11	11	20,924	317,551	338,475	348,601
Maryland	6	5	5				
Wisconsin	5	1	1				
Kentucky	5	1	1				
Massachusetts	1	1	1				
Tennessee	11	1	2	28,145	58,349	86,494	86,496
Utah	1	1	1				
West Virginia	5	2	2				
Michigan	4	4	4				
Minnesota	3	2	2	33,216	41,354	74,570	68,865
Missouri	1	0	0				
Texas	1	0	0				
Spiegel and ferro—all states	....	....	....	8,424	26,794	35,218	36,890
Total	359	171	174	652,237	2,009,626	2,661,863	2,812,015

Prosperity, at New High in Fiscal Year, to Continue, Says Hoover

ECONOMIC progress characteristic of American industry for six years continued in the fiscal year ended last July 1. Volume of production and consumption and physical quantity of exports and imports broke all previous records.

Except for moderate recession at the end of the year there was little unemployment and real wages remained higher than anywhere else in the world or at any other time in history.

This high prosperity was not an upward swing in the business cycle; it represented, rather, progress both general and permanent.

The extraordinary increase in production by industry in America, with a consequent corresponding advance in living standards, reflects not merely recovery from the dislocation of war but an advance beyond prewar standards.

The country may, from time to time, suffer the depressions of the business cycle but there is no reason to anticipate any continuing recession and, on the contrary, much reason to believe progressively higher levels will be attained.

IN HIGHLY-COLORED and enthusiastic words do Secretary of Commerce Herbert Hoover and E. Dana Durand, chief of his division of statistical research, review the progress of American business in the fiscal year ended July 1, 1927, and scan the horizon.

Barring some unsatisfactory aspects in the coal and textile industries, the relatively low price of cotton and some depression in Middle West agriculture, the economic skies are reported cloudless. Of ten major economic indexes, all but three stood higher than in 1925-26 and all but two as high or higher than in any year preceding 1925-26.

MAJOR ECONOMIC INDEXES
(Based upon calendar year 1919 = 100)

Item	—Year ended June 30— 1923	1924	1925	1926	1927
Volume of business (quantities, not value):					
Manufacturing production	116	115	118	127	129
Mineral production	119	133	129	132	149
Forest products, production	117	122	121	124	114
Freight, railroad, ton-miles	109	110	110	119	125
Electric-power production	136	148	158	179	198
Building contracts let, square feet	107	108	112	142	132
Value of sales:					
Department stores	118	125	126	133	136
5-and-10-cent stores	152	173	196	219	240
Mail-order houses	91	100	110	122	123
Wholesale trade	80	82	83	85	83

But the improvement registered has not held strictly to orthodox channels. Marking new phases of economic life, the most conspicuous gains in industry and distribution in 1926-27 were in the output of electric current and in the sales of 5 and 10-cent stores. The former, Secretary Hoover believes, indicates a displacement of other sources of light, heat and power and enhancement of standards of living, while the flow of nickels and dimes denotes a shift in methods of distribution.

On the whole, declares Secretary Hoover, the level of wholesale prices has been very steady the past five fiscal years. There have been no sharp upward movements due to boom psychology and no sudden drops due to contraction in demand. The average wholesale price index for 1926-27 was 147, or a 6 per cent decline from the 156 of 1925-26. The general cost of living stood at 174.5 in the past fiscal year compared with 175.5 the preceding one. In every instance 1913 equals 100.

Analyzing the causes of prosperity and progress, Mr. Durand states:

The causes which have made for the rapid advance in American industry are fortunately of an enduring and cumulative character. The idea that out present high prosperity is the result of the World war is wholly without foundation. The war cut down the efficiency of our industry besides wasting an important fraction of its product. The increase in exports during the war was far less than the government expenditures on war. Marked as has been the gain in the last few years in our export of manufactures, which alone competes with Europe, it shows less increase over the immediate prewar period than that in turn showed over the opening years of the century. Exports at the present time are not a larger proportion of our production than before the war. Export trade in any case represents barely 10 per cent of our production of movable commodities.

The true causes of the prosperity and economic progress of the United States are not difficult to discern. At the foundation lie the rich resources of the country, not taxed by an excessive population, and the energy and intelligence and attitude toward work of the producing population. In our earlier days advance was in considerable measure attributable to the opening up of new resources, but during the past quarter century this has not been a major influence. There have been some discoveries of minerals, notably of petroleum, but these have been largely offset by the using up of other resources; for example, of the more conveniently located forest reserves. The principal factors of the recent increase in productivity are what may be called human as distinguished from natural factors.

These basic causes of economic progress translate themselves into a number of more specific and directly work-

(*Concluded on Page* 1460)

PRICE INDEXES
(Based upon calendar year 1913 = 100)

Item	—Years ended June 30— 1924	1925	1926	1927
Wholesale prices:				
General average	150	155	156	147
Farm products	140	153	152	138
Food	143	153	156	150
Cloths and clothing	194	189	184	171
Fuel and lighting	175	169	175	175
Metals and metal products	141	130	128	124
Building materials	182	174	174	170
Chemicals and drugs	129	133	133	126
House-furnishing goods	178	171	166	159
Miscellaneous	116	124	134	120
Retail prices:				
Food	146	150	162	158
General cost of living*	171	171	175½	174½

*Figures are averages of indexes for 3, 4, or 5 months distributed through the fiscal year, including in each case June of the previous year.

German Iron and Steel Industry Now Nearly on Prewar Basis

WHILE many of the great industries of Germany have displayed remarkable recuperative powers in their recovery from the disastrous effects of the World war and the currency inflation of 1922-23, the recovery of the German iron and steel industry has been especially remarkable and in the instance of the raw steel industry has so far recovered as to be closely approaching prewar production levels. In the following brief analyses of conditions in pig iron and raw steel, and especially in the subjoined statistics, something of this recovery is reflected.

While the greatest strength has been manifested by the German steel industry, pig iron production has also shown distinct recuperative powers. In 1913 a total of 19,309,172 metric tons of pig iron was made in German blast furnaces while in 1927, if the year's total be computed from the production accomplished during the first nine months, approximately 13,000,000 tons will be made, equal to nearly 70 per cent of the prewar figure and exceeding well the tonnage produced in 1913 in the area of postwar Germany. With the end of the inflation period of 1923, production in 1924 amounted to approximately one-half that of 1913, and 1924, 1925 and 1926 all saw an increasing output but it was not until 1927 that a sharp upward tendency was shown. In considering the foregoing it is interesting to note that it has been estimated that the Treaty of Versailles reduced German pig iron capacity by approximately 43 per cent.

Another interesting factor indicative of the rationalization taking place is revealed by the following table. From this it will be noted that while the number of furnaces has decreased steadily the capacity per furnace has been continuously mounting, a condition which is largely the result of the replacement of many of the small capacity, relatively uneconomical furnaces by new, large capacity units. It is also of interest to note that as the production of pig iron has increased the number of workers employed at blast furnaces has declined.

An accompanying table of pig iron production graphically presents the picture of the recovery of this industry, in metric tons.

Steel production of 1927 (assuming that the production is maintained on the same rate as during the first nine months) will total approximately 16,200,000 metric tons, an increase of 31 per cent over the 1926 figure of 12,341,636 tons, while in 1913, the steel production of the country was only 17,135,000 metric tons. The present steel production of the country has already attained 95 per cent of the 1913 peak in the face of a

(*Concluded on Page* 1460)

Based on a report by Trade Commissioner Thomas Butts, Berlin, to the department of commerce.

Table I

German Pig Iron Production, 1913-27

(Data taken from Statistik des Deutschen Reichs)

Year	Number of plants	Number of workers	Wages paid (1000 Mks)*	Number of blast furnaces existing at end of year	Number of blast furnaces in operation during the year	Operation time in furnace weeks	Consumption of iron ore and manganese ore (1000 t)	Pig iron produced (1000 t)	Value of products (1000 Mks)*
1913	93	42,131	67,944	376	313	15,130	37,834	16,764	1,087,923
1914	91	34,047	55,170	328	303	11,531	27,640	12,581	793,734
1915	87	26,706	44,215	326	222	10,255	23,559	10,155	749,537
1916	88	29,710	55,091	329	251	11,600	26,620	11,342	997,446
1917	83	35,724	80,255	336	272	12,634	26,147	11,622	1,537,262
1918	73	28,706	86,263	267	210	9,799	18,020	9,206	1,516,524
1919	69	33,879	186,957	232	152	6,514	10,556	5,654	2,527,760
1920	63	36,745	550,802	228	146	6,504	11,244	6,388	11,016,078
1921	66	37,125	.....	233	156	6,773	13,386	7,855	.....
1922	63	36,979	.....	209	158	7,008	15,157	9,195	.....
1923	63	33,463	.....	309	152	4,730	7,963	4,941	.....
1924	55	24,371	47,691	193	138	4,735	12,265	7,833	718,665
1925	56	23,266	58,604	200	141	5,408	16,200	10,089	879,063
1926	....	.....	.....	.....	.....	.....	.....	9,644†	.....
1927	....	.....	.....	.....	.....	.....	.....	13,000†	.....

*1916-1923 inflated currency; data 1921-1923 not given.
†Figures furnished by "Verein Deutscher Eisen und Metall Industrieller," based on 10 months' production.

NUMBER AND CAPACITY OF BLAST FURNACES

Year	Existing furnaces	Under operation	Daily capacity of existing furnaces (metric tons)
1913	376	313	.....
1920	232	127	35,997
1921	239	146	37,500
1922	219	147	37,600
1923	218	65	40,800
1924	215	106	43,700
1925	211	83	47,800
1926	206	109	52,300
1927	191	115	50,700

Table II

German Raw Steel Production, 1913-27

(Data taken from Statistik des Deutschen Reichs)

Year	Number of plants	Number of workers	Wages paid (1000 Mks)*	Consumption of Pig iron (1000 t)	Consumption of Scrap iron (1000 t)	Production ingots and castings (1000 t)	Value of products (1000 Mks)*
1913	106	48,632	71,371	13,282	5,578	17,135	1,603,701
1914	106	36,766	61,831	10,457	4,601	13,710	1,265,011
1915	104	36,947	69,117	8,915	4,533	12,010	1,498,179
1916	112	43,703	90,754	9,997	5,630	14,240	2,116,311
1917	112	51,168	130,574	9,860	5,897	14,322	2,726,810
1918	108	48,328	150,139	7,804	5,252	11,830	2,769,173
1919	99	43,229	227,817	4,207	3,387	6,877	4,057,109
1920	102	47,186	683,913	4,998	4,216	8,383	18,468,280
1921	107	50,513	.....	6,203	4,827	9,943	.....
1922	101	50,964	.....	7,159	5,235	11,209	.....
1923	103	47,385	.....	3,739	3,131	6,208	.....
1924	103	32,590	62,318	6,371	4,278	9,703	1,057,593
1925	106	34,762	85,017	7,936	5,278	12,051	1,299,824
1926	.....	.....	.....	.....	.....	12,341†	.....
1927	.....	.....	.....	.....	.....	16,200†	.....

*1916-1923 inflated currency; data 1921-1925 not given.
†Figures furnished by "Verein Deutscher Eisen und Metall Industrieller," based on 10 months production.

British Pig Iron Is More Active

Price Reduction Stimulates Sales—Northern Furnaces Discuss Joint Selling Agency—Steel Buying on Hand-to-mouth Basis—Tin Plate Demand Continues Improving—German Exports Increasing

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Dec. 6.—Makers of pig iron in the northern districts of England are discussing a plan for a joint selling agency. The recent cut in the price of British pig iron has stimulated buying. The position of Barrow furnaces, however, is unsatisfactory, and present low prices prohibit a further reduction. Foundries in the Midland district are consuming iron at a fair rate.

Activity of the British plants is depending on day-to-day orders. Mills in the Sheffield and Birmingham districts are busy with rolling stock. Further progress is noted in the revival of the tin plate demand. Orders are coming from China and other countries. Sir William Arrol & Co., Ltd., Glasgow, have booked an order for a steel bridge in Nigeria.

German domestic business is slack, but exports are increasing, according to a dispatch from Berlin. Signs of improvement are noted in the domestic market in France, while exports are fair. The French pig iron entente has been renewed for one year. The strike of metalworkers in the Saar district has been settled satisfactorily and the men now are back at their posts. Belgian markets are quiet; many of the steelworks are booked attractively into next year.

British Find World Steel Demand Restricted

LONDON, Nov. 24.—(*European Staff Service*).—Reports from Brussels are that iron and steel export business is improving and the recent rise in prices, although small, is being well maintained.

Manufacturers point out that at this time of year warehouses are in the necessity of replenishing stocks. A number of British merchants, undeterred by the rebate scheme, are confident that engineers and rerollers will continue to take advantage of the difference in price which continues in favor of continental material. As a result, they are gradually building up their stocks. They feel that prices had reached bottom and are endeavoring to stem the upward trend by purchasing small tonnages at close intervals.

Although the situation has improved, it is noted that world demand still is restricted, and the practical closing of the Chinese market is exerting its influence in this direction. British producers are taking a share in the steel export business, but cannot compete against the continent for semifinished steel. In fact, the British transforming industries continue to supply themselves with continental billets and sheet bars and orders amounting to several thousand tons have been placed recently. At present this activity has died down. The same applies to a lesser degree in the finished steel market.

Keen competition is being experienced generally in pig iron. Continental prices are firmer and the difference in quotations between British and continental material is small, with the result that little business is passing. Continental foundry pig iron, 2.5 to 3 per cent silicon, now

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, December 5	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		£ s d		£ s d		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$15.83	3 5 0*	$14.85	3 1 0	$14.85	3 1 0	$14.61	3 0 0
Basic	.....	.....	14.61	3 0 0	14.61	3 0 0	14.61	3 0 0
Basic-bessemer	17.65	3 12 6†	14.37	2 19 0	14.37	2 19 0	14.61	3 0 0
Hematite, Phosphorus 0.02-0.05	17.41	3 11 6	21.81	555*	.....	.....	17.05	3 10 0
SEMIFINISHED STEEL								
Billets	$28.00	5 15 0	$20.94	4 6 0	$20.94	4 6 0	$21.18	4 7 0
Wire rods	47.48	9 15 0	26.79	5 10 0	26.79	5 10 0	26.79	5 10 0
FINISHED STEEL								
Standard rails	$37.74	7 15 0	$31.05	6 7 6	$31.05	6 7 6	$31.05	6 7 6
Merchant bars	1.58c	7 5 0	1.06c	4 16 0	1.06c	4 16 0	1.05c	4 15 0
Structural shapes	1.55c	7 2 6	1.00c	4 7 6	1.00c	4 7 6	1.01c	4 12 0
Plates, ship, bridge and tank	1.71c	7 17 6	1.32c	6 0 0	2.10c	5 18 0	1.49c	6 15 0
Sheets, black, 24 gage	2.39c	11 0 0	2.15c	9 15 0	2.12c	9 12 6	2.86c	13 0 0
Sheets, galvanized, 24 gage, corrugated	2.85c	13 2 6	3.30c	15 0 0	3.25c	14 15 6	3.74c	17 0 0
Bands and strips	2.28c	10 10 0	1.24c	5 12 6	1.24c	5 12 6	1.49c	6 15 0
Plain wire, base	2.12c	9 15 0	1.49c	6 15 0	1.60c	7 5 0	1.60c	7 5 0
Galvanized wire, base	3.04c	14 0 0	1.93c	8 15 0	1.93c	8 15 0	2.09c	9 10 0
Wire nails, base	2.83c	13 0 0	1.60c	7 5 0	1.65c	7 10 0	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.32	0 17 9	.....	.....	.....	.....	$ 6.82	1 8 0

	*Francs		Francs		Francs		Marks	
Domestic Prices at Works or Furnace—Last Reported								
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$16.44	3 7 6	$16.51	420(2)	$16.40	590	$17.02	74
Basic pig iron	.....	.....	17.88	455(1)	15.57	560	19.32	84
Furnace coke	3.17	0 13 0	6.09	155	5.14	185	4.95	21.50
Billets	28.00	5 15 0	19.26	490	21.96	790	25.88	112.50
Standard rails	1.74c	8 0 0	1.40c	775	1.43c	1,100	1.46c	140
Merchant bars	1.63c	7 10 0	1.00c	555	1.12c	860	1.40c	134
Shapes	1.66c	7 12 6	1.00c	530	1.11c	855	1.37c	131
Plates, ship, bridge and tank	1.82c	8 7 6	1.29c	715	1.40c	1,080	1.55c	149
Sheets, black, 24 gage	2.50c	11 10 0	2.39c	1,325	2.21c	1,700	2.29c	220
Sheets, galvanized 24 gage, corrugated	2.93c	13 10 0	4.05c	2,250	3.71c	2,850	3.65c	350
Plain wire	2.12c	9 15 0	1.62c	900	1.82c	1,400	2.03c	195
Bands and Strips	2.28c	10 10 0	1.21c	670	1.33c	1,020	1.61c	154

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.17) f. o. b. Ferromanganese £18 11s 3d ($90.40) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($73.05) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

is about £3 0s ($14.60) per ton f.o.b. Antwerp. British pig iron is £3 7s 6d ($16.35) in the Middlesbrough district and £3 5s ($15.65) for Scotland and export markets. French and Belgian producers of semifinished steel have of late obtained substantial orders, with the result that many makers have retired from the market. Two-inch billets are firm at £4 5s ($20.55) f.o.b. Antwerp. There have been some orders for beams and merchant bars, particularly from Japan, and prices are hardening. Bars are being quoted as high as £4 18s ($23.75), but nothing changes hands above £4 17s ($23.50) and even that price is paid only for prompt delivery. The average price is about £4 16s ($23.25), which is 1s (24c) higher than a week ago. Beams continue firm at £4 8s ($21.25).

Wire rods have improved since formation of the syndicate and demand has increased. The Luxemburg export firm Columeta is reported to have secured an order for rails for Japan in the face of keen foreign competition. The United States Companies, Ltd., of Great Britain, have recently obtained 45,000 tons of rails for the Argentine republic. Hadfields, Ltd., of Sheffield, have sold tramway track work for Buenos Ayres. Rail tenders are invited by Bulgarian railroads.

The plate and sheet market is satisfactory and producers refuse to make concessions on prevailing prices. Plates are just under £6 ($29) per ton. Export prices of wire products now are £6 15s ($32.55) for bright wire, £8 15s ($42.40) for galvanized wire, and £7 12s 6d ($36.95) for wire nails, all f.o.b. Antwerp.

French Coke Output Off

Paris, Nov. 24.—(*European Staff Service*)—Production of coke at French collieries in September was less than in August. September imports included 224,243 tons from Germany, 98,448 tons from Belgium and Luxemburg, 45,946 tons from Holland and 26 tons from other countries. Export tonnage was divided between Italy, with 32,522 tons, Switzerland, with 13,361 tons, Yugo-Slavia, with 8049 tons, Belgium and Luxemburg, with 1464 tons, the balance going to Spain, Algeria and other countries. The following table gives comparisons in metric tons:

Mon. ave	Production	Imports	Exports
1913	335,620	255,835	17,085
1924	220,765	350,160	42,330
1925	255,410	419,410	39,440
1926	313,950	462,915	39,320
1927			
Jan.	348,957	528,861	15,608
Feb.	312,525	431,972	22,363
March	344,101	394,187	30,753
April	331,237	388,781	22,519
May	336,740	426,314	32,792
June	336,029	396,953	35,547
July	343,769	194,994	43,296
August	330,385	457,980	39,588
September	332,244	368,663	56,126

British Exports More Than Year Ago

Birmingham, Eng., Nov. 24.—(*European Staff Service*)—The British board of trade's return for October shows a total export of iron and steel products, including scrap, of 406,183 tons, compared with 408,566 tons in September and 196,597 tons a year ago.

Imports, including scrap, were 338,894 tons, compared with 317,096 tons in September and 406,871 tons in October last year.

Pig iron exports are rather small and ferroalloys show a reduction from 6550 tons in September to 4718 tons in October. Exports of bars, rods, angles and shapes are rather better and there is an improvement in cast tubes, pipes and fittings. Wrought tubes, etc. have increased from 20,722 tons to 25,118 tons. Galvanized sheets and tin plates still reflect the severe depression in those departments.

Importation of steel blooms, billets and slabs has increased from 59,850 tons to 80,683, and for the ten months the total is 817,304 tons, against 675,512 tons in the same period last year. Plates and sheets so far this year total 293,843 tons against 199,725 tons a year ago.

Exports of coke and manufactured fuel totaled 313,946 tons, against 313,538 tons in 1925. Last year there were practically no exports. Coal exports totaled 4,141,106 tons as against 4,382,484 tons two years ago.

British Pig Iron Maker Earns Profit

London, Nov. 24.—Stockholders of the Millom & Askam Hematite Iron Co., Ltd., held their annual general meeting in Liverpool Nov. 14. This company has a capital of £2,000,000 ($9,700,000), but a debenture stock of £101,520. ($492,000). For nine months' operation since the cessation of the coal stoppage the company made a profit of £84,877 ($409,000). After deducting debenture redemption and interest and perference dividend, a further sum of £20,318 ($98,000) was deducted, which had been incurred in the first three months of the financial year owing to the coal stoppage. The final result for the year was a net profit of £55,255 ($268,000), against £1314 ($6350) for the previous year. This is one of the few pig iron concerns which have registered profits for the past financial year. Owing to increased orders, a third furnace has been blown in.

Belgian Steel Market Is Stiffer

BRUSSELS, Nov. 24.—(*European Staff Service*)—The iron and steel market appears to be in a more healthy condition than for some weeks. This seems to be particularly due to the disposition of producers to refrain from selling at famine prices. Should these conditions continue they will result in a decrease of production, especially as buyers are not yet disposed to pay higher prices for steel. It is, however, impossible to state whether the price increase will continue, as in the course of this year there already have been several ups and downs, due to the fact that during periods of depression producers were obliged to sell below cost to keep their works going; otherwise they would have been compelled to dismiss part of their skilled labor.

The signing of the wire rod syndicate has had a good influence on the market as it creates a precedent which enables hopes to be entertained that the semifinished steel and structural steel syndicates also will be successfully formed. There is a certain amount of agitation among workers for higher wages, and this is causing some concern as under present conditions it is impossible to grant these requests.

Franc—2.78c

Export quotations for pig iron are seriously discussed in view of competition from British furnaces. In the Belgian domestic market business is more satisfactory and there is a good current of orders. In semifinished steel the situation is uncertain. Demand from Great Britain has dwindled, while, on the other hand, many Belgian producers are out of the market. The only line in which substantial business is being done is sheet bars. Basic bessemer blooms now are £3 18s ($18.85) per ton f.o.b. Antwerp. Two-inch billets are £4 4s ($20.35), sheet bars £4 6s 6d ($20.90), and skelp £5 ($24.25). The market for bars is firm and extras for size and cutting are strictly applied. Certain mills are quoting £4 16s ($23.25) per ton f.o.b. Antwerp, but no business is being transacted.

Business in beams and structural shapes is dull and the market remains weak. Business is done at the following prices: Merchant bars £4 15s ($23), concrete bars £5 ($24.25), nut and bolts bars £4 16s 6d ($23.25), beams, normal profile, £4 8s ($21.30), British sections £4 9s 6d ($21.70), rods £5 4s ($25.15). The plate and sheet market has improved; 3-millimeter sheets are £6 5s ($30.30). The wire rod syndicate has fixed the basis price of £5 10s ($26.60) f.o.b. Antwerp. Czecho-Slovak mills are quoted £5 2s 6d ($24.80).

The price applying on wire products and wire nails continues to drop and wire nails now are sold in the domestic market at 1450 francs ($40.15). The Clouteries de la Paix are under-quoting the Socobelge.

It is announced that Ougree-Marihaye has acquired control of Societe Alliance Monceau. There is a tendency toward horizontal mergers in the Belgian iron and steel industry. An agreement has been reached between France and Belgium with regard to tariffs.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

MALLEABLE IRON FITTINGS CO., Branford, Conn., has purchased the Clark-Williams Engineering Co., Bridgeport. For five years the latter company has manufactured a pole foundation designed for service in telegraph, telephone and power transmission lines. It consists of two heavy malleable iron castings which clamp the butt of the pole to a concrete base embedded in the ground. These mounts are particularly adaptable to service on city corners or similar places which prohibit the use of guy wires. Rolland Williams, inventor of the clamp, has joined the staff of the Malleable Iron Fittings Co. and the offices have been consolidated at Branford.

* * *

ALLOYS REFINING CORP., Indianapolis, has been formed to recondition nonferrous scrap metals. It is capitalized at $100,000.

* * *

VALLEY BRASS & BRONZE CO., New Kensington, Pa., has established a Pittsburgh sales office in the Oliver building, in charge of T. J. Llewellyn.

* * *

ALFRED FISHER FURNACES INC., 803 West Madison street, Chicago, manufacturer of oil and gas-fired melting furnaces and similar products, has incorporated its business with $50,000 capital.

* * *

AMERICAN CASTINGS CO., Chicago, aluminum castings, has just moved into its new plant at 6833 South Irving avenue where production will be much enlarged. The former plant will be practically rebuilt at once for further expansion.

* * *

FREDERICK OSANN CO., New York, manufacturer of sewing machines and equipment for garment making plants, has opened southeastern headquarters at 231 Healey building, Atlanta, in charge of J. M. Jones.

* * *

KETLER-ELLIOTT CO., Chicago, hand forged tools, has moved into its new plant at 3101 South California avenue. Its facilities for production are much increased in the new plant. Its general contracting department for bridges and buildings is moved to the same location.

* * *

HEEBNER & SONS INC., Lansdale, Pa., operator of gray iron, brass and aluminum foundries and manufacturer of farm machinery, has been reorganized. The plants, idle since April, 1926, have resumed operation. Harvey V. Mitchell is president and Ira B. Harr secretary and treasurer.

* * *

BUMP PAPER FASTENER CO., LaCrosse, Wis., has leased its plant to W. H. Norton, Chicago, who will start about Jan. 1 the manufacture of a machine for rolling wrapping paper at the mill. The machines weigh 2000 pounds each. Associated with Mr. Norton are L. W. Morgan and A. Hutchison, Bangor, Wis.

* * *

STANDARD TURBINE CORP., Scio, N. Y., has sold to the Murray Iron Works Co., Burlington, Iowa, its turbine manufacturing business, with patents and patterns. The latter has plants at Burlington and Aurora, Ill. The turbines will be manufactured at the former plant. The plant at Scio will be continued in operation, producing flexible couplings.

* * *

OM. EDWARDS CO., Syracuse, N. Y., has completed an addition to its plant for the production of railroad supplies. The new structure is four stories 60 x 160 feet and a 1-story, saw-tooth extension 120 x 120 feet. H. K. Ferguson Co., Cleveland, had the contract and completed the structure two weeks ahead of agreement.

* * *

BURNS BOTTLING MACHINE WORKS, Baltimore, which was incorporated recently, is a continuation of an existing business, manufacturing machinery for bottling works. William L. Burns is president, William W. Burns, vice president, and I. E. Burns, secretary-treasurer. The plant is located at 2329 Taylor street.

* * *

KOKOMO BRASS WORKS, Byrne, Kingston & Co. and the Kokomo Electric Co., all of Kokomo, Ind., have arranged merger plans under the name of Kokomo Products Corp. Officers are: President and general manager, Paul Johnson; secretary and treasurer, F. C. Ryan. Other directors are Carlton M. Higbie, Fay Beal and Karl Johnson.

* * *

ROBERT LINN FOUNDRY & MACHINE WORKS, Chicago, has bought the plant and equipment of the Crawford & McCrimmon Co., Brazil, Ind., manufacturer of woodworking machinery. The company ceased operations shortly after the war. The plant will be used for the manufacture of roller bearings for trucks and railroad equipment.

* * *

R & L. CONCRETE MACHINERY CO., Kendallville, Ind., which has been in business for several years, has become incorporated with $45,000 capital. No change will be made in policy or management. The incorporators are H. J. Grosvenor and Nellie L. Grosvenor of Fort Wayne, Ind., and H. L. Grosvenor of Kendallville.

* * *

AXELSON MACHINE CO., Los Angeles, is making additions to its plant and increasing its equipment for the manufacture of oil well pumps, sucker rods and machine shop lathes for the oil industry. Jule C. Axelson is president and general manager; Delbert F. Axelson, vice president and plant manager; Clyde Ellwood, director of sales; E. E. Kerfoot, secretary and treasurer.

* * *

PITTSBURGH FORGINGS CO., Pittsburgh, has been formed to take over the plant and business of the Pittsburgh Knife & Forge Co. with its plant at Coraopolis, Pa. The new company will continue production of automotive, railroad and miscellaneous forgings and shear knives. Edwin Hodge Jr. is president of the new company, W. M. Robinson secretary and treasurer, F. W. Strickler assistant treasurer, R. A. Mitchell general manager, and W. H. Stocking, assistant to the president.

* * *

CANADIAN IRON FOUNDRIES, LTD., Hamilton, Ont., and others, are interested in opening mining operations on a large scale near Bath-

urst, Gloucester county, New Brunswick. A new process for utilizing ore of the class available there in large quantities has made this seem advisable. The process is designed to produce sponge iron which can be shipped in place of ore, which is of too low grade to be used profitably. A plant in Norway using this method will be inspected by engineers with a view to using the same method at Bathurst.

* * *

BIRMINGHAM MACHINE & FOUNDRY CO. has just shipped its largest automobile lift to the Fifth Avenue Coach Co., New York, to handle busses. The lift weighs 17,000 pounds. The shop is producing lifts in 3600-pound size. This product is part of the diversification program of the company.

* * *

HAMILTON METALPLANE CO., organized by Thomas F. Hamilton, president of the Hamilton Aero Mfg. Co., Milwaukee, maker of propellers and other parts, has begun the manufacture of aircraft. A factory has been established at 530 Park street, and machinery is being installed. Parts for 25 ships will be made at once and assembled in groups of five, the first to be ready for delivery about March 1. The design of the craft is that of the "Maiden Milwaukee", which finished in second place in the Ford reliability tour several months ago. It is a monoplane, of all-metal construction, with a cabin for six passengers. Air-cooled nine-cylinder radial engines are used. Clarence R. Falk, of the Falk Corp., is vice president of the Hamilton company.

German Steel Industry Near Prewar Basis

(*Concluded from Page* 1456)

loss of about one-third of the prewar steelmaking capacity.

At the beginning of 1924 (after the period of inflation) German steel production was about 55 per cent of the 1913 production. During 1924 and 1925 there was a steady increase in about the same ratio as the increase in the pig iron production although during 1926, steel production showed no increase. In 1927, however, marked improvement came and, as noted above, it seems probable that a total of more than 16,000,000 tons of steel will be made.

As in the case of the pig iron industry a distinct tendency is toward the erection of larger units and it is estimated that the present steelmaking capacity of Germany lies between 16,000,000 metric tons and 18,000,000 tons as against a prewar capacity of approximately 19,000,000 tons (for the prewar area).

An accompanying table of production presents a picture of the growth of the German steel industry before, during, and since the war, in metric tons.

Prominent German iron and steel men believe that a possible set-back to continued prosperity of the industry is to be anticipated if the law regulating the hours of work is enforced. As the matter stands at present, the industry will return to an 8-hour basis Jan. 1, 1928, and no change in that particular legislation is anticipated in the meantime.

The industrialists foresee as a result of this legislation an augmentation to their present staff amounting to 22 per cent of those now employed. Their statement in this respect, however, should not be taken too seriously. The German mills have not yet reached the point of efficiency in the use of machinery which has been achieved in the United States and impartial and competent observers remark particularly upon the large number of men to be seen about German steel plants in comparison with those in American plants of the same kind.

Prosperity Will Stay Says Hoover

(*Concluded from Page* 1455)

ing causes. Among these may be mentioned especially the advance in education, scientific research, and invention; the growing use of mechanical power, machinery, and other forms of capital; the larger scale of production; the conscious and concerted effort to eliminate waste and reduce costs; the high scale of wages, with consequent general high buying power; and the relative stability of prices, money, and credit.

An immense increase has taken place in the capital employed in American industry. On the average each wage earner in our mines is now aided by more than $10,000 of capital, each factory employe by more than $5000, and each railway worker by more than $8000. It has been roughly estimated that the annual savings in the United States amount to about ten billions of dollars or approximately one-ninth of the national income. New issues of capital securities alone totaled more than six billions of dollars in 1926.

The accumulation of capital is reflected in the great and increasing application of mechanical power. On the average each factory wage earner today is aided by 4.3 horsepower of prime movers, figure about double that in 1900. A similar great increase has taken place in the power of locomotives as compared with the number of railway employes. On farms the decline in the number of horses and mules is more than offset by the larger employment of mechanical tractors; as a consequence the number of acres tilled per worker is steadily rising. The United States now consumes in fuel and water power the equivalent of from 7 to 8 tons of coal per capita annually, as against less than 5 tons at the beginning of the century. The increase would be much greater but for the marked improvements in economizing fuel. The increasing use of mechanical power means, of course, a corresponding greater use of machinery. Moreover, the machines themselves have been made more efficient so that the growth of power equipment does not fully measure the gain in productive capacity of machinery.

One of the most profound modern tendencies is the swiftly expanding use of electric current both in the household and in industry. We are adding 10 or 12 per cent to the output of electricity every year. Approximately two-thirds of our factory machinery is now operated by electric motors as compared with 15 per cent 20 years ago. The electric stations are rapidly advancing in technical efficiency. The amount of fuel converted to coal units burned in fuel-using electric plants has fallen from about 3.2 pounds per kilowatt hour in 1919 to about 1.9 pounds in 1927. There is little doubt that three times as much current is obtained from a given quantity of fuel at the present time as 15 or 20 years ago.

Industrial units in the United States are much larger than anywhere else in the world and are steadily growing in size. Manufacturing plants with an annual output exceeding $1,000,000 each represent only about 5 per cent of the total number of establishments, but they contribute two-thirds of the total value of factory products. Adjusting for change in the buying power of money, the corresponding proportion 20 years ago was only about 45 per cent. Large-scale production is particularly conducive to low costs where processes are repetitive. Specialized machinery is used in such "mass production," whereas with a smaller output it would be necessary to use machines designed for more general purposes and less adapted to the particular task. The workers likewise can develop highly specialized efficiency. The immense domestic market of the United States makes possible repetitive production in numbers of units far greater than are produced in plants abroad.

Installs Mercury Boiler

Hartford, Conn., Dec. 6.—The experimental mercury boiler installation at the South Meadows plant of the Hartford Electric Light Co. has proved so successful that a contract for an additional mercury boiler installation has just been let to Stone & Webster Corp., Boston. The new project will cost about a quarter of a million dollars.

Attacks Group Quoting of Castings as Wrong

Speaking before a joint meeting of Newark Foundrymen's association and the metropolitan section of the American Society of Mechanical Engineers at Newark, N. J., Dec. 1, E. H. Ballard, general superintendent of the Lynn, Mass., plant of the General Electric Co., vigorously attacked the group method of quoting on castings. The speaker asserted that the method of classifying the product and establishing schedules by weight is wrong as the true cost of any individual casting is lost. He believed that the grouping of a number of classes is worthwhile as a check on the average cost of a group, but for billing and accounting knowledge of true conditions, each individual casting should be figured and billed at its own cost. This, Mr. Ballard said, has the further advantage of attracting the attention of the designing engineer to the casting, as it often results in further simplification of the casting and in turn a reduction in the expense.

Another interesting speaker was R. T. Turner, sales promotion manager, Shepard Electric Crane & Hoist Co., Montour Falls, N. Y., who delivered an illustrated address on the subject of mechanical handling in foundries. He cited many cases, illustrating them both by lantern slides and motion pictures, where mechanical conveying equipment has affected great savings in both time and money. Mr. Turner confined his remarks to a description of various features of electric overhead equipment. He summed up his keynote in the following phrase: Fewer moves, shorter distances, and fewer men. He pointed to a bucket system of charging cupolas as having many distinct advantages. Among various installations, he showed one whereby materials for cupolas in a foundry, producing 125 tons a day, were handled by a single electric transfer hoist.

Iron, Steel Output Index Rises in October

Washington, Dec. 6.—Iron and steel production index number for October was 111, compared with 110 for September and 138 for October, 1926, taking 1919 at 100, according to the department of commerce. Index number for October for "other metals" was 155, compared with 165 for September and 178 last October.

Index number for October for unfilled orders for iron and steel industry was 31, compared with 30 for September and 38 for October last year, taking 1920 as 100.

New Nail Extras Bring Advance in Price

New York, Dec. 6.—Establishment of new differentials on wire nails is equivalent to an advance of 20 to 30 cents per hundred pounds in the net price of nails. Hitherto the sizes ranging from 20 to 60 penny, inclusive, have been base; now they take an extra of 25 cents per 100 pounds.

Nail extras for sizes other than 20 to 60 penny have been changed as indicated in the following table:

	Old extras	New extras
16 penny	10c	30c
12 penny	15c	35c
10 penny	20c	40c
9 penny	30c	45c
9 penny	30c	50c
7 penny	55c	55c
6 penny	60c	60c
5 penny	75c	70c
4 penny	80c	80c
3 penny	$1.15	$1.15
2 penny	$1.45	$1.65

In addition to the new extras for size, the new base asking price of $2.55, Pittsburgh, is equivalent to an advance, since nails prior to Dec. 1 were selling commonly at $2.45 and in some cases as low as $2.35.

The full extras as shown above will be charged on less than carload lots. A discount of 10 per cent in extras will be allowed on carloads.

The above extras are based to a considerable extent on the various factors of cost involved in each size, including the popularity and the consequent volume of business in each particular size. All extras are given in the accompanying table.

Standards Are Continued

Washington, Dec. 6.—Simplified practice division, department of commerce, is sending a communication to producers, distributors and users of both sheet steel and terne plate calling attention to the fact that at the recent revision conference the present simplification schedule was reaffirmed and no changes were made in the schedule.

Canada received nine freight cars from the United States in September.

STANDARD NAIL CARD

Extras on Standard Wire Nails in Kegs

Effective Dec. 1, 1927, Cancelling All Previous Issues

Common Nails

2d	$1.65
3d	1.15
4d	.80
5d	.70
6d	.60
7d	.55
8d	.50
9d	.45
10d	.40
12d	.35
16d	.30
20d	.25
30d	.25
40d	.25
50d	.25
60d	.25

Casing Nails

2d	$1.70
3d	1.20
4d	1.05
5d	.95
6d	.70
7d	.65
8d	.60
9d	.55
10d	.50
12d	.45
16d	.40
20d	.30
30d	.30
40d	.30

Flooring Brads

6d	$0.65
7d	.60
8d	.55
9d	.50
10d	.45
12d	.40
16d	.35
20d	.30

Boat Nails Bright

	Light	Heavy
4d	$0.95	$0.95
6d	.80	.80
8d	.75	.75
10d	.70	.80
12d	.65	.70
16d	.60	.70
20d	.55	.65

Common Brads

2d	$1.70
3d	1.20
4d	.85
5d	.75
6d	.65
7d	.60
8d	.55
9d	.50
10d	.45
12d	.40
16d	.35
20d	.30
30d	.30
40d	.30
50d	.30
60d	.30

Shingle Nails

3d	$1.05
3½d	.85
4d	.80
5d	.70
6d	.65

Smooth Box Nails

2d	$1.65
3d	1.15
4d	1.00
5d	.90
6d	.65
7d	.60
8d	.55
9d	.50
10d	.45
12d	.40
16d	.35
20d	.25
30d	.25
40d	.25

Siding Nails

Same advance as Smooth Box Nails

Slating Nails

2d	$1.20
3d	1.00
4d	.85
5d	.75
6d	.65

Barbed Roofing Nails Regular Head

¾-inch	$1.55
⅞-inch	1.30
1 inch	1.20
1¼-inch	1.10
1¼-inch	.95
1⅜ inch	.90
1½-inch	.80
1¾-inch	.75
2 -inch	.65

Fence Nails

5d	$0.60
6d	.55
7d	.45
8d	.45
9d	.40
10d	.40
12d	.35
16d	.30
20d	.25

Hinge Nails Bright

	Light	Heavy
4d	$0.95	$0.95
6d	.80	.80
8d	.75	.75
10d	.70	.80
12d	.65	.75
16d	.60	.70
20d	.52	.65

Finishing Nails

2d	$2.25
3d	1.60
4d	1.45
5d	1.35
6d	.80
7d	.75
8d	.65
9d	.60
10d	.55
12d	.50
16d	.45
20d	.35

Fine Nails

2d	$2.20
3d Extra	2.40
3d	1.65
3d Extra	2.15

Clinch Nails Bright

2d	$1.57
3d	1.35
4d	1.10
5d	1.00
6d	.90
7d	.85
8d	.80
9d	.75
10d	.70
12d	.65
16d	.60
20d	.55

Barbed Car Nails

	Bright Light	Heavy
4d	$1.05	$0.95
5d	.85	.80
6d	.80	.75
7d	.70	.70
8d	.70	.70
9d	.65	.68
10d	.65	.65
12d	.60	.60
16d	.55	.58
20d	.50	.50
30d	.50	.50
40d	.50	.50
50d	.50	.50
60d	.50	.50

Clout Nails Bright

⅝-inch	$2.40
⅞-inch	1.75
1 -inch	1.55
1⅛inch	1.50
1¼-inch	1.36
1⅜-inch	1.25
1½-inch	1.20

Sterilized Blued Lath Nails

2d	$2.55
2d Light	2.75
3d	1.95
3d Light	2.50

Barrel Nails

⅝-inch	$2.45
¾-inch	2.10
⅞inch	1.45
1 -inch	1.25
1¼-inch	1.20
1¼-inch	1.15
1⅜-inch	.95
1½-inch	.90

Berry Box Nails

Smooth

	No.16	No 17
⅝-in	$2.95	$3.00
⅞-in	2.55	2.75
1 -in	2.35	2.55
1¼-in	2.35	2.50
1¼-in	2.25	2.45

Spikes

10d	$0.40
12d	.35
16d	.30
20d	.25
30d	.25
40d	.25
50d	.25
60d	.25
7-inch	.23
8-inch	.35
9-inch	.35
10-inch	.45
12-inch	.45

Barbed Dowel Pins

	No. 8	No. 9	No. 10	No. 11	No. 12
⅝-inch	$1.75	$1.90	$2.00	$2.20	$2.45
⅞-inch	1.60	1.65	1.75	1.90	2.15
⅞-inch	1.35	1.50	1.60	1.75	2.00
1 -inch	1.25	1.40	1.50	1.65	1.90
1⅛-inch	1.15	1.30	1.40	1.50	1.75
1¼-inch	1.10	1.25	1.35	1.45	1.70
1⅜-inch	1.05	1.20	1.30	1.40	1.65
1½-inch	1.00	1.15	1.25	1.35	1.60
1⅝-inch	.95	1.10	1.20	1.30	1.55
1⅞-inch	.90	1.05	1.15	1.25	1.50
2 -inch	.85	1.00	1.10	1.20	1.45

SPECIAL EXTRAS ON STANDARD WIRE NAILS

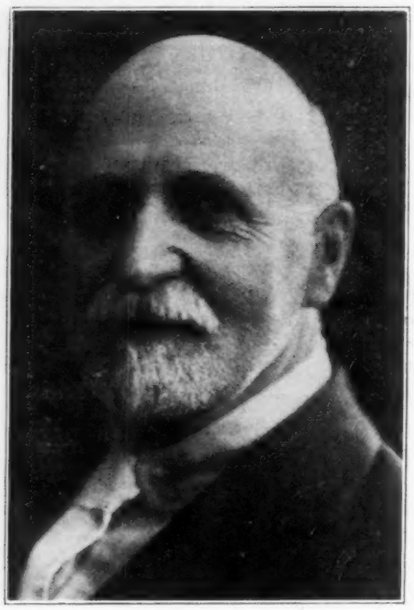
(Except as provided above)

Annealed Nails, 25.00c per 100 lbs. extra
Blued Nails, 35.00c per 100 lbs. extra.
Barbing Nails, 25.00c per 100 lbs.

Special Heads, 15.00c per 100 lbs. extra.
Special Points, 15.00c per 100 lbs. extra.
Galvanizing, prices on application.

Industrial Men in the Day's News

Alex Dow, New President of American Society of Mechanical Engineers



BORN and raised in an atmosphere of industry and a member of an historical iron working family in Scotland, he turned his attention to the development of electricity.

THROUGH many phases of engineering and industrial pioneering, he has attained a national prominence such as demonstrated by his recent election.

CONTRIBUTION to the progress of science has been expressed in work on committees, holding municipal office and in serving national societies.

ALEX DOW, elected president of the American Society of Mechanical Engineers at its annual convention in New York this week, is one of the pioneers of the electrical industry in the United States. Without a technically trained education he has achieved national recognition as an engineering and electrical authority by self training and intensive application. He was born into a family that was historic in its industrial legends. On his father's side Mr. Dow came from a family in which for generations the eldest son had been a skilled ironworker. Mr. Dow's father, an expert accountant, had served an apprenticeship at the forge.

Mr. Dow when young had an ambition to become a marine engineer but circumstances prevented its realization. He was born April 12, 1862, in Glasgow, Scotland. His schooling was obtained in what then was the public school, the school of the Scots Presbyterian parish. Before he was 12 he had started on his business career, obtaining a place as messenger in a railroad office. During the succeeding six years he held the positions of junior clerk and stenographer. He then joined the Cunard Steamship Line, spending as much spare time as possible in the engine rooms.

His entrance into the electrical industry came shortly after his emigration to America, Mr. Dow entering the United States in 1882 and becoming a citizen in 1895. His first employment in the United States was with the Baltimore & Ohio railroad. Soon afterward he joined the Baltimore & Ohio Telegraph Co. in charge of local line and instrument maintenance with some work on telephones. In 1888 he became affiliated with the Brush Electric Co., Cleveland, manufacturing arc light dynamos and other electrical machinery. In 1893 Mr. Dow went to Detroit where he has been located since. There he designed and supervised construction of the public lighting plant. In July, 1896, he took charge of the Edison Illuminating Co., Detroit, as vice president and general manager. In January, 1903, the Detroit Edison Co. was organized to succeed the other company, Mr. Dow becoming president. He served his city as the engineer member of the board of water commissioner from 1916-21, and again from 1925-27 and now is engaged in the construction of a duplicate water service, serving for a third short term as president of the board of water commissioners. Mr. Dow is a director of the Detroit United Railways.

In addition to his activities in the American Society of Mechanical Engineers, Mr. Dow is a charter member and past president of the Detroit Engineering society, member of the American Society of Civil Engineers, American Institute of Electrical Engineers, Institution of Electrical Engineers, England, etc. Among his social clubs are the Detroit and Detroit Athletic clubs.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

ROBERT J. FRANK has been made vice president in charge of sales of the Copperweld Steel Co., Rankin, Pa., with sales headquarters at Glassport, Pa. Stanton Hertz, formerly electrical engineer, has been made sales manager. Rolf Selquist, formerly assistant electrical manager, is now electrical engineer. William Jay McIlvane has been appointed district manager with headquarters in New York, and Erich G. Elg, district manager, with headquarters in Chicago. S. H. Burr, formerly inspector and line material specialist at the Buffalo and New York offices of Graybar Electric Co., is now with the engineering department of the Copperweld company, with headquarters in New York.

* * *

Charles G. Spice, formerly with the Hyatt Roller Bearing Co., Newark, N. J., has resigned and is now associated with the Chrysler Corp., Detroit.

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Harry N. Hall has been made advertising and sales promotion manager of the Stockholm Pipe & Fittings Co., Birmingham, Ala. Mr. Hall was formerly with MacDonald, Acton & Young, Philadelphia.

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T. A. Hoeller, representative for the American Hoist & Derrick Co., St. Paul, in Seattle, has transferred his headquarters from 1501 L. C. Smith building to 503 Biltmore apartments, Seattle.

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Ernest Standfuss has been made vice president and general works manager of Harnischfeger Corp., Milwaukee, succeeding Arthur G. Henricks, whose death was announced in IRON TRADE REVIEW, issue of Nov. 17.

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Arthur H. Adams, assistant superintendent of manufacturing development, Hawthorne, Ill., works, Western Electric Co., is now technical adviser to the president of the Manhattan Electrical Supply Co., New York.

* * *

R. W. Blanchard, for many years manager of the Chicago office of Hart & Cooley Mfg. Co., New Britain, Conn., maker of registers, regulators, etc., has been elected president, succeeding J. H. Robinson, recently made chairman of the board.

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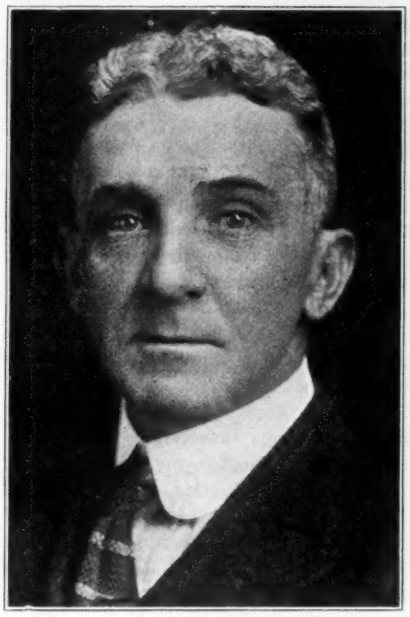
Charles M. Swatzel, for a number of years secretary and manager of the Rhodes Implement Co., Kansas City, has bought out the interests of the late George A. Plank, and succeeds to the presidency of the organization.



W. W. COLEMAN
Whose election as president of the Bucyrus-Erie Co. has been announced previously

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Carl E. Johnson, formerly vice president of the U. S. Electrical Mfg. Co., is president of the new Sterling Electric Motors Inc., which has been organized recently at Los Angeles to manufacture motors and motor specialties.

* * *

Reese Llewellyn, president of the Llewellyn Iron Works, Los Angeles, was guest of honor at a banquet tendered him by heads of departments of the company held on its fortieth anniversary. He was presented with a bronze tablet.

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Robert P. Lamont, president of American Steel Foundries, Chicago, has been elected to the board of directors of the Illinois Bell Telephone Co., succeeding the late John J. Mitchell. Mr. Lamont also is a director of the American Radiator Co., Ward & Co., International Harvester Co., and First National bank, Chicago.

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R. E. Dow, for many years purchasing agent for International Supply Co., with headquarters at Tulsa, Okla., has been made general sales manager.

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J. B. Frisbie, for many years connected with foreign commerce work, has been made assistant manager of the foreign commerce department of the chamber of commerce of the United States.

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J. W. Furnass, mining engineer formerly with the minerals-metal division of the economic branch of the bureau of mines, has been made chief of the mineral division of the bureau of foreign and domestic commerce, succeeding Marshall W. Tuthill who was called to Washington recently by Herbert Hoover, secretary of commerce.

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G. F. Ziv has been elected president of the Ziv Steel & Wire Co., Chicago. Other newly-elected officrs include A. Ziv, chairman of the board of directors; N. J. Hyslip, vice president; M. Foley, secretary and H. E. Ziv, treasurer.

A. F. Brunck has been made general sales manager of the Ziv company, with his headquarters in Chicago.

* * *

Joseph B. Deisher has entered business for himself as a consulting foundryman with headquarters at 24 Roslyn street, Rochester, N. Y. Mr. Deisher previously was connected for three years with the American Malleable Castings association and the Malleable Iron Research institute as assistant consulting engineer. More recently he was in Europe for several months as consulting foundryman. Mr. Deisher will specialize in application of pulverized coal to malleable foundries and the investigation of sand problems.

* * *

C. L. F. Wieber Jr. has been elected president of Henkel-Claus Co., Fre-

mont, O., manufacturer of surgical instruments, manicure scissors, and various hardware supplies, succeeding Paul E. Schaaf. Mr. Schaaf who began with the J. H. Claus Shear Co. as a shear polisher, many years ago, is retiring. Mr. Wieber is also a member of the board of directors.

Walter F. Weinhardt and H. M. Potter, both of Fremont, continue in office as vice president and secretary, respectively. In addition to these three men, others on the board of directors are C. L. F. Wieber Sr., J. H. Griswold, S. M. Schultz and A. T. Hopkins.

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R. Thiesenhusen, formerly purchasing agent and Frank Marks, formerly superintendent of the Wesley Steel Treating Co., have been made treasurer and vice president, respectivly.

* * *

Charles H. Hain, for 46 years with the Warsaw Elevator Works, Warsaw, N. Y., has resigned as plant superintendent and will manage an automobile agency which he has purchased.

* * *

Paul Renfrew, research department of S. F. Bowser & Co., Fort Wayne, Ind., has been elected secretary-treasurer of the Fort Wayne chapter of the American Society for Steel Treating.

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R. W. Woodruff and W. C. Teagle, both directors of the White Co., Cleveland, have been named members of the White executive committee, succeeding Windsor T. and Thomas H. White, who resigned recently.

* * *

Frank J. Thrall has been made director of purchases, Hayes Body Corp., Grand Rapids, Mich., succeeding W. W. Hoagland who has been elected president of the Body corporation, as announced in IRON TRADE REVIEW, issue of Nov. 17.

* * *

Robert Whyte, for many years connected with the Pittsburgh Piping & Equipment Co., and American Foundry & Construction Co., has been added to the sales organization of Pittsburgh Valve, Foundry & Construction Co., Pittsburgh.

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Robert J. Anderson, consulting engineer and metallurgist, has become identified with the Fairmont Mfg. Co., Fairmont, W. Va., and will have charge of the chemical and physical laboratories of the company and otherwise supervise scientific research work.

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M. A. Grossman, of Central Alloy Steel Corp., Massillon, O., and E. C. Bain, of Union Carbide & Carbon Research Laboratories, Long Island City, N. Y., both metallurgists, have returned from the international testing congress, at Amsterdam, Holland, in September.

* * *

John H. Tross, general manager of the Rogers Structural Steel Co., Corry, Pa., and with that company since 1920, has left to join the Structural Gypsum Co., and will be located in Pittsburgh.

L. Edwin Roelofs, chief engineer of the Rogers company, will succeed Mr. Tross as general manager.

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Earl H. Collester, formerly assistant manager at the Steubenville works, Wheeling Steel Corp., Wheeling, W. Va., has been appointed manager of the newly-created department of safety and welfare, Weirton Steel Co., Weirton, W. Va. He was active in the formation of the Eastern States Blast Furnace and Coke Oven association and was its first secretary. For several years he was superintendent of the by-product coke oven plant of the Wheeling Steel Corp. at East Steubenville, W. Va.

* * *

Arthur A. Fowler has resigned effective Jan. 2, from the presidency of Rogers Brown & Crocker Bros. Inc., New York, pig iron, coke, ores and ferroalloys interests. He will remain as a director of the company. After his graduation from college, Mr. Fowler engaged in the export grain and private banking business. He entered the firm of Rogers, Brown & Co., in 1905 later serving as resident partner in New York. When the Rogers Brown organization was merged with Crocker Bros. in 1925 to form Rogers Brown & Crocker Bros. Inc., Mr. Fowler was made president with headquarters in New York.

George A. Crocker Jr. has been elected to succeed Mr. Fowler as president.

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William S. Newell who has been made president and general manager of the Bath Iron Works Corp., Bath, Me., resigned recently as general manager of the shipbuilding division of the American Brown Boveri Electric Corp., Camden, N. J., where he had been for the last 15 months. Previous to that time, he was with the former Bath Iron Works for 23 years, eight of which were spent as works manager.

A. M. Main has been elected vice president and naval architect, W. M. Truss, vice president in charge of estimates and sales and L. Eugene Thebau, treasurer of the Iron works. Roland F. Hill, has been made general superintendent in charge of the ship yard.

* * *

W. F. Schleiter, who resigned recently as vice president and general manager of sales for Dilworth, Porter & Co. Inc., Pittsburgh, has become president of the Verona Tool Works, Verona, Pa. succeeding W. F. Hart, now with the Bethlehem Steel Co., as manager of sales of the pipe and tube department. Mr. Schleiter was with the Dilworth company for 37 years, starting as an order clerk and working upward to the position he held when he made his recent change.

Joseph Dilworth and John C. Dilworth, secretary and mill manager respectively, of the Dilworth company, have been elected vice presidents, assuming the duties of Mr. Schleiter.

Elects New Officers

At a meeting at the Allerton hotel, Cleveland, Dec. 2, the Ohio section of the American Institute of Mining and Metallurgical Engineers elected Col. F. B. Richards, M. A. Hanna Co., Cleveland, chairman, and T. H. M. Crampton, Carey Co., Cleveland, secretary-treasurer. Col. Richards and Mr. Crampton succeed Prof. H. M. Boylston and C. E. Murray, the latter secretary of the group since 1920. Addresses were given by E. L. DeGolyer, national president, and Dr. H. Foster Bain, national secretary of the institute.

Will Install Melting Unit

Installation of a new 500-pound electric melting furnace at the plant of the Southern Manganese Steel Co. Inc., St. Louis, will be completed by Jan. 14, 1928, according to officials of the company. The unit will be erected in a new building and the operation confined exclusively to the production of small and light designed castings of special alloy steel. It will operate as an auxiliary to a 1½-ton electric melting furnace now used for the production of a special heat and corrosion-resisting alloy.

For New Scrap Rates

Washington, Dec. 6.—Interstate commerce commission has found not unreasonable but unduly prejudicial freight rates on scrap metals in carloads from Beaumont, Galveston and Houston, Tex., to St. Louis. Reparation has been denied but new rates prescribed.

Cuba received 117 freight cars in September from the United States.

Obituaries

HARRIS WHITTEMORE, 63, chairman of the board of the Eastern Malleable Iron Co. died at his home at Naugatuck, Conn., Nov. 29. He was born at Naugatuck, and in 1885, following his graduation from Phillips Andover academy, started in the iron business as an office boy with the Cleveland Malleable Iron Co. Three years later he entered the sales department of the Naugatuck Malleable Iron Works. He became president of this latter company, and on its consolidation with the Eastern Malleable Iron Co. became president of the combined organization, which included several companies other than those mentioned. Mr. Whittemore had been a director of the New York, New Haven & Hartford railroad, Landers, Frary & Clark of New Britain, Conn., the National Malleable & Steel Castings Co., Cleveland, the Link-Belt Co., Chicago, and the American Pin Co., Hartford, Conn.

* * *

John F. Wade, formerly works manager of the Bristol Brass Corp., Bristol, Conn., died recently at his home in that city.

* * *

David N. Armstrong, 51, president and general manager, Armstrong Mfg. Co., Bridgeport, Conn., maker of pipe cutting and fittings, died recently.

* * *

Louis E. White, vice president and treasurer of the Gale Mfg. Co., Albion, Mich., maker of welding rods, died recently.

* * *

Merwin McKaig, president of the Cumberland Steel Co., Cumberland, Md., died Dec. 4, at his home there. He was a graduate of the University of Virginia.

* * *

Alexander A. Robertson of James Robertson & Co., manufacturer and dealer in hardware and plumbers' supplies, Montreal, Que., died Nov. 27, aged 58.

* * *

Pierre Peugeot, president of the Peugeot Co., French automobile manufacturer of Herimanicourt, and a commander of the Legion of Honor, died in Paris recently.

* * *

W. W. Ramsey, 59, director of foreign sales, J. I. Case Threshing Machine Co., Racine, Wis., died Nov. 30. He was born in Trenton, Tenn., and became associated with the Case company in 1892.

* * *

Michael Pirchesky, for the past 14 years, proprietor of the Riverside Iron & Steel Co., Monongahela, Pa., died in Boston recently. He was born in Russia coming to the United States when he was five years old.

* * *

J. Jarvis Preble, vice president of the Spray Engineering Co., Boston, maker of spraying equipment, died recently. Mr. Preble had been with the company for 14 years, the last two of which were spent as vice president.

* * *

Peter Pettler, 62, who died Nov. 28 at his home in Beaver Falls, Pa., was identified with the foundry and machine business, and was president of the Standard Clay Products Co., Fallston, Pa., and head of P. Pettler & Sons, Beaver Falls, Pa., sellers of machinery.

* * *

John Twohy, 73, long identified with railroad, steel and contracting projects in the Northwest, died at his home in Seattle, Nov. 23. During the recent war he organized the Seattle-North Pacific Shipbuilding Co., which constructed many steel steamers for the government in record time. His birthplace was Copper Harbor, Mich.

* * *

Carl Eickemeyer, creator of a number of inventions, died at his home in Brooklyn, N. Y., Dec. 1, aged 59. He had patented among other inventions, a disappearing gun carriage, a high speed third rail, automatic pumps, etc. He established the Eickemeyer, Field Mfg. Co., later merged with the General Electric Co.

* * *

James Newton Gunn, 60, industrial engineer, and widely known in the automobile industry, died Nov. 26 at his home in New York. Mr. Gunn reorganized the Studebaker Corp. when that company undertook the manufacture of automobiles. He retired from business in 1923 because of ill health, but later entered the engineering field as a consultant.

* * *

Luther V. Rice, 66, civil and mining engineer, who died recently in Glendale, Calif., was a graduate of Cornell university, Ithaca, N. Y., and was known widely as a bridge engineer. He had charge of the building of the Merchants bridge over the Mississippi river at St. Louis, and the Central bridge over the Ohio river at Cincinnati. For 25 years he was chief engineer and director of Robert W. Hunt & Co., Chicago.

* * *

William Byron Rufe, secretary of Jenkins Bros., New York, and Jenkins Bros. Ltd., Montreal, Que., manufacturer of valves, packing, and similar products, who died Nov. 27, in Brooklyn, N. Y., aged 56, was born in Lehigh county, Pa., and went to New York when he was 15. He began working in a lawyer's office, but later resigned and was employed by Jenkins Bros. as stenographer. Mr. Rufe became secretary of the company upon its incorporation in 1907 and would have completed 40 years of service January, 1928.

Beehive Coke Output Up as Coal Declines

Beehive coke production in the week ended Nov. 26 was 86,000 net tons, compared with 82,000 tons in the week preceding and 197,000 tons in the corresponding week of 1926, according to the federal bureau of mines. For the calendar year to date beehive coke output is 6,585,000 tons against 10,593,000 tons one year ago.

Bituminous coal output in the week ended Nov. 26 was 8,838,000 tons, contrasted with 9,998,000 tons in the preceding week. For the calendar year to date the production of bituminous coal stands at 473,488,000 tons, while a year ago it was 513,684,000 tons.

Barrel, Drum Standards Considered

Washington, Dec. 6.—The simplified practice recommendation which reduced the varieties of steel barrels and drums from 66 to 24, or 64 per cent, will be in effect for one year if the recommendation is reaffirmed at a meeting in Cleveland, Dec. 7, to be attended by the standing committee of the steel barrels and drums industry and H. R. Colwell, of the division of simplified practice, department of commerce.

The first prize, a silver medal, for the best safety record in group B railroads has been awarded the Duluth, Missabe & Northern railroad by the American Museum of Safety, the second consecutive year the railroad has won the prize.

How Iron, Steel Section Aided Industry

Washington, Dec. 6.—The past year has seen a marked expansion in the American export trade in iron and steel and a well maintained trade in hardware and allied products, says Dr. Julius Klein, chief of the bureau of foreign and domestic commerce, in his annual report to the secretary of commerce on the work of the iron and steel section of his bureau. Dr. Klein continues:

The chief of this division, as a result of his personal visits to the important iron and steel producing centers of continental Europe and Great Britain, was enabled to present to the American industry a definite statement indicative of the true competitive ability of these foreign producers in the world's markets when opposed to American products, and in numerous instances he has allayed the fears of those who believed that we had no chance in that trade in the future. Further, he was in a position to encourage certain domestic steel manufacturers operating coastal points to continue their efforts in combating the importation into their territory of cheap continental products.

The publications of this division greatly increased in number as compared with 1925-26. In all, 256 circulars were issued during the fiscal year 1927. The division's statistical work was materially expanded. In addition to the monthly analyses of imports and exports prepared for general publication, and an increasingly large number of replies to requests for specific data, 13 distinct analyses of the import and export trade are prepared monthly and transmitted to 60 interested "contacts."

One of the oustanding services of this division in its relations with American manufacturers is its extensive monthly analyses of our iron and steel imports—analyses which not only disclose the sources from which these products come but which also show the areas of the United States that they enter.

Manganese Producers in Washington Office

Washington, Dec. 6.—The American Manganese Producers' association, recently organized for the purpose of increasing production of manganese ores in the United States, recently opened general offices in Washington. As an aid in national preparedness it is undertaking to relieve the dependency of America on foreign sources of supply.

Officers of the association are as follows: President, J. Carson Adkerson, consulting engineer, Woodstock, Va.; vice president, John H. Cole, president, Domestic Manganese Development Co., Butte, Mont.; secretary, H. A. Pumpelly, vice president Domestic Manganese Development Co., Owego, N. Y.; and treasurer, A. J. Seligman, president, Butte Copper & Zinc Co., New York.

Is Seeking Revision of Mine Income Tax

Washington, Dec. 6.—J. F. Callbreath, secretary, American Mining congress, appeared recently before the house ways and means committee and presented a plan for simplification of that portion of the income tax law relating to mine depletion.

The plan, it is claimed, provides a simple, definite method, easy of application, that permits the prompt determination of the tax liability, and furnishes a method for computing the depletion deduction readily susceptible to audit in the field, and amounts to a distinct aid to decentralization policy now in force by the bureau of internal revenue.

It is said to obviate the uncertainty inherent in any valuation plan due to the necessity for the use therein of numerous more or less arbitrary factors, and removes the uncertainties resultant from the present methods when the unit depletion deduction requires adjustment due to unavoidable errors in the original estimate of ore reserves.

A new paragraph in the law is proposed as follows:

"In the case of metal mines the allowance for depletion shall be 15 per cent of the gross income from the property during the taxable year. Such allowance shall not exceed 50 per cent of the net income of the taxpayer (computed without allowance for depletion) from the property, except that in no case shall the depletion allowance be less than it would be if computed without reference to this paragraph."

Says Quizzing of Trade Bodies Is Helpful

Washington, Dec. 6.—"Recognizing that trade associations kept within legal limits can serve a useful purpose, not only in the various industries of the country, but likewise in aid of the purchasing consumers of products, the department examined the purposes and activities of a number of such associations," says Attorney General Sargent in his annual report to the President. Discussing trade associations further the attorney general says:

"It has been the purpose, insofar as practicable, not to interfere with legitimate trade association activities, but to prevent at the inception activities bringing about undue restraints of trade."

Bureau Would Cut Down Flue Dust Loss

About 75,000 tons of pig iron, valued at $1,200,000 at the present market price, is lost annually as flue dust escaping from blast furnaces in one district in the South, states Scott Turner, director of the federal bureau of mines, in his report to the secretary of commerce for the fiscal year ended last June 30. The flue dust losses in the district investigated average 250 pounds per ton of pig iron produced. By the use of magnetic concentrators of various kinds it is thought that much of this loss can be prevented, states the report.

Investigations in ferrous metallurgy conducted in the past year by the bureau include the utilization of manganiferous iron ores, fundamental reactions in the blast furnace, desulphurizing pig iron by blast furnace slags, gas-solid reactions in the blast furnace shaft, case carburizing of steels, concentration of Wyoming iron ores, physical chemistry of steelmaking and research on the production of sponge iron.

Problems under investigation in the physical chemistry of steel-making include the solubility of iron oxide in iron and the effect of iron oxide on the physical properties of pure iron, effect of composition of slag on the solubility of iron oxide in iron, formation and identification of nonmetallic inclusions, and viscosity of slags.

A study of the carburizing quality of steels, made in a small electric furnace where conditions could be held constant, has shown that there is a direct relationship between abnormality of steel and the carbon and manganese content. The relationship found does not, however, apply quantitatively to commercial practice, as other variables have to be considered. The rate of solidification and cooling has a marked effect on the abnormality. The study is being continued.

Meet on Kalamein Doors

Washington, Dec. 6.—A meeting will be held here Dec. 14 under auspices of the simplified practice division, department of commerce, of the committees on simplification of hollow and kalamein doors. Following the joint meeting of these committees a general conference will probably be called in January.

Alvin T. Simonds, of the Simonds Saw & Steel Co., Fitchburg, Mass., will shortly announce the subject of the 1928 economic essay for which he offers a prize of $1500.

CONSTRUCTION *and* ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

JEWETT CITY, CONN.—Aspinook Co. has awarded structural steel for the erection of a plant.

ATTLEBORO, MASS.—Ornamental Tube Works Inc. has been incorporated with $50,000 capital to manufacture metal products, plain or ornamental tubing, by Stephen H. Garner, 367 South Main street.

BOSTON—Meisel Press Mfg. Co. plans to build a 1 and 2-story plant 100 x 255 feet.

BOSTON—Mechanical Products Corp. has been incorporated with $100,000 capital to manufacture mechanical products of all kinds, by Harland Manchester, 833 Beacon street.

BOSTON—Ramin-New England Display Service Inc. has been incorporated with $50,000 capital to manufacture advertising materials, machinery, products, etc., by Ezra Ramin, 79 Hutchings street, Roxbury, Mass.

BOSTON—Macfarlane & Abbott Inc. has been incorporated with $50,000 capital to engage in mechanical construction, steam fitting, etc., by Charles Brander Macfarlane, 39 Pleasant street, Waltham, Mass.

BOSTON—Laminated Sheet Products Corp. has been incorporated with 500 shares no par value stock to fabricate micarta and bakelite products by Charles Roud, 494 Norfolk street, Mattapan, Mass.

BOSTON—DuPree Vibrator Inc. has been incorporated with $100,000 preferred and 200 shares no par value stock to manufacture vibrating appliances and accessories by Walter Hartstone, 40 Court street, Boston.

BOSTON—Boston Collier System of Gas Heating Inc. has been incorporated with 200 shares no par value stock to manufacture and deal in machinery and apparatus, etc. to utilize gas for heating, by Peter L. Thompson, Wellesley road, Natick, Mass.

CAMBRIDGE, MASS.—Cambridge Sheet Metal Co., 295 Franklin street, will build a 1-story addition, 60 x 85 feet, to its auto body plant. E. T. P. Graham, 171 Newbury street, Boston, is the architect.

SOMERVILLE, MASS.—Birch Bros., 32 Kent street, maker of textile machinery, has awarded the general contract for a 2-story plant.

SOMERVILLE, MASS.—F. G. Volpe, Hager street, Arlington, Mass., is inquiring for machinery and equipment for a proposed foundry and machine shop to be built at 14 Kent street, this city. (Noted Nov. 24.)

WEST ROXBURY, MASS.—L. W. Moody, 29 Gould street, is inquiring for machinery and equipment for a 1-story machine shop, 50 x 70 feet. (Noted Nov. 24).

WORCESTER, MASS.—Johnson Steel & Wire Co., 50 Wiser avenue, has awarded the general contract for extensions and improvements, to I. R. Petterson, Worcester.

JERSEY CITY, N. J.—M. W. Kellogg Co., maker of tanks and heavy plate products, contemplates expansion of its plant.

TRENTON, N. J.—John A. Roebling's Sons Co., maker of wire rope, cables, etc., has awarded the general contract for a new building, to Hoggson Bros., 485 Fifth avenue, New York.

BROOKLYN, N. Y.—Peelle Co., Stewart avenue and Harrison place, maker of elevator fire doors, etc., will build a 2-story addition to its plant.

BROOKLYN, N. Y.—National Casting & Pattern Corp. has been incorporated with $15,000 capital by E. C. Morsch, 1028 Gates avenue.

BROOKLYN, N. Y.—Central Smelting & Trading Co. has been incorporated with $1000 capital to deal in brass and metals by S. S. Paymer, Jamaica.

BUFFALO—Houde Engineering Co., manufacturer of shock absorbers, is building an addition to its plant, expected to double the present capacity.

HUDSON, N. Y.—Sheppard Oil Burner Corp. has been incorporated with $125,000 capital by E. C. Schutt, Hudson, attorney.

NEW YORK—Severino Safety Razor Co. has been incorporated with $100,000 capital by

(*Continued on Page* 1469)

Resale Equipment News

STEINMETZ ELECTRIC MOTOR CAR CORP., Baltimore, Richard S. Culbreth, 633 Calvert building, trustee, will be sold at public auction Dec. 14. The real estate includes four acres with a 1-story building 100 x 200 feet. Machine tools and other equipment will be disposed of at the same sale.

* * *

Assets of the Automobile Equipment Mfg. Co., 2532 Cottage Grove avenue, Chicago, were sold at bankrupt auction Dec. 5, including goodwill, parts, finished products and equipment.

* * *

Maurice P. Davidson and James S. Landers have been appointed receivers of the A. B. C. Boiler Corp., 342 Madison avenue, New York, which operates a plant at Poughkeepsie, N. Y. The plant is mortgaged for $75,000, and the company had additional liabilities of about $40,000. The assets are said to be worth $540,000. Lack of liquid assets precipitated the receivership.

Sales Calendar

Dec. 14—*Auction sale of assets of Steinmetz Electric Motor Car Corp., Baltimore, by trustee in bankruptcy.*

* * *

B. Coleman Silvers Co., bankrupt, 2524 South Western avenue, Chicago, disposed of its stock and equipment at auction Dec. 6. Woodworking and general factory equipment for the manufacture of toys made up the equipment.

* * *

St. Helens Iron & Marine Works, St. Helens, Oreg., has been bought by A. Lundgren of St. Helens, and P. DeSantis and E. Daniels, of Portland, Oreg. The name will be changed to St. Helens Blacksmith & Machine Works.

* * *

New Process Iron & Steel Co., Noblesville, Ind., has been placed in the hands of James Morrison as temporary receiver, on petition of the Baker Gravel Co., of the same city. Hearing on petition to make the receiver permanent will be held soon.

* * *

Assets of the Mar-Tan Motor Mfg. Co., 837 Twenty-ninth street, Milwaukee, will be sold at public auction soon by Fred G. Osborne, receiver, under order of court. The sale will include raw and finished materials, motors, machinery, shop, factory and office equipment, tools, jigs and patents.

Machinery

Sales and Inquiries Are Spotty—Little Improvement Expected Until After First of Year— More Price Revisions Announced

A SPOTTY condition exists in machine tool and equipment buying. In the New York area and around Chicago, the volume of buying is fairly steady. Pittsburgh sales are fair and Cleveland, Toledo and Detroit constitute dead spots. In the face of conditions for the last two months, it is not expected that December will make an improvement. The tendency at present is for buyers to postpone action until after the first of the year. Inquiries are not extensive. In some markets used tools are cutting heavily into the purchases of new. Further price increases have been noted during the past week, one slotter manufacturer having revised prices upward 10, 15 and 20 per cent on various models. Crane sales are exceedingly dull with few inquiries.

Chicago, Dec. 6.—November's steady volume of scattered industrial machine tool buying is being carried into December with no perceptible slowing down. Used tool inquiry was brisk during the past week, despite the fact that heavy offerings of used tools have come into the market. Several dealers reported their used tool sales considerably above the average. Among orders placed for new tools were an 18 and a 22-inch lathe, a friction saw for the Gary, Ind., district, several specialty tools, brass foundry equipment and sheet metal working tools. The John Deere Co., Moline, Ill., purchased five lathes. A steam shovel manufacturer in Milwaukee has a list out for several items. Prices are unchanged.

Pittsburgh, Dec. 6.—Activity in machine tools outside of special machinery is increasingly limited. This will be the case all through this month, manufacturers seeking to defer purchases until after the holidays. Some special automatic grinding equipment for working chromium steel is being purchased, together with occasional lathes and other needed items. One dealer states that the past three months has been the worst quarterly period in several years. Higher prices on machine tools are gradually appearing, one line of lathes having been advanced 10 per cent a week ago and a manufacturer of shapers announcing a similar increase to take effect shortly. No sales and no inquiries are noted in locomotive cranes; in fact, one general contractor which has been renting a number of cranes to railroads now has repaired these and is offering them for sale. This is hurting the sale of new locomotive cranes somewhat. Overhead traveling cranes are quiet, one or two sales alone being noted. Little in the way of new inquiry is appearing.

New York, Dec. 6.—Machine tool sellers report a continued dullness locally, but better buying by companies in adjacent territories. With the holidays close at hand, however, they see little likelihood of the month surpassing November. Few large lists are in prospect and improvement in miscellaneous demand is not overly promising. Current trading comprises numerous orders of large units. A builder of grinding machines has increased prices 10 per cent and several others are likely to follow. Buying is still exceedingly slack in overhead and locomotive cranes. Some sellers report the past month the slowest in their experience, but improvement is expectd this month in overhead cranes as not only are two large lists likely to be closed shortly but inquiry is slightly better.

Cleveland, Dec. 6.—Conditions in this territory show no improvement and it is not believed they will until after Jan. 1. Dealers handling miscellaneous lines are doing fairly well, but standard lines of tools are not moving well. The poor operations of the automobile industry in Cleveland, Detroit and Toledo are responsible for the blank order books. So far, Ford's announcement of the new car has caused no immediate upturn in industrial activity.

Detroit, Dec. 6.—Demand for machinery is small. Automobile manufacturers are out of the market as a whole, with the exception of some machine tool stock for experimental purposes. Other manufacturers are buying very sparingly and the outlook is not considered favorable for the balance of the year. Considerable new equipment will be required to equip the new plant of the Yellow Truck & Coach Mfg. Co., Pontiac, Mich., which will be placed in production shortly after the first of the year, according to present plans.

CRANE ORDERS PLACED

Five cranes, including one 175-ton ladle crane, three 50-ton standard and one soaking pit crane, for American Rolling Mill Co., Middletown, O., to Morgan Engineering Co.

Three cranes, including one 125-ton ladle crane, one soaking pit crane and one low-type open-hearth floor charging machine, for Continental Steel Co., Kokomo, Ind., to Morgan Engineering Co.

Two cranes, including one 100-ton ladle crane and one 75-ton crane, for Youngstown Sheet & Tube Co., Youngstown, O., to Morgan Engineering Co.

Among single orders were: 25-ton trolley with 7 ½-ton auxiliary for National Tube Co., Lorain, O., to Alliance Machine Co.; 4-ton crane for Union Electric Steel Co., Carnegie, Pa., to Northern Engineering Works; 200-ton locomotive handling crane for Canadian National railways, for installation in shops at Stratford, Ont., to Morgan Engineering Co.; 250-ton special 3-girder crane for Bethlehem Steel Corp., for installation at Lackawanna, N. Y., to Morgan Engineering Co.

CRANE ORDERS PENDING

Three cranes, including one 5-ton and two 40-ton, for Baldwin Locomotive Works, Eddystone, Pa.; for export, pending.

40-ton locomotive crane for Bethlehem Mines Corp., New York; pending.

Two-Month Crane Orders Constitute Record

Consecutive orders for large capacity electric cranes received in October and November by the Morgan Engineering Co., Alliance, O., constituted a record which is without parallel in the history of that company. During this period orders were received for 16 cranes ranging in size up to 250-tons. The total estimated weight of these machines was 5,576,000 pounds, the average weight being 348,500 pounds, or 174¼ tons each.

Deducting three special machines, it was found that the combined rated lifting tonnage capacity, including auxiliary hoists, of the 13 regular cranes was 1785 tons, or an average of 137.3 tons per crane. Several of the cranes included in this record are shown on this page under the heading of "Crane Orders Placed."

Committees Are Set Up

Washington, Dec. 6.—The American Manganese Producers' association, which recently opened headquarters here, has set up six committees of which the following are the chairmen: Tariff, L. B. Miller, Cleveland; research, D. H. McCloskey, Staunton, Va.; finance, A. J. Seligman, New York; publicity, H. A. Pumpelly, Oswego, N. Y.; traffic, C. W. Massie, Woodstock, Va.; and geological, Dr. J. S. Grasty, Charlottesville, Va.

Ohio Tool Makers Merge

Newcomerstown, O., Dec. 6.—Merging of the Vixen Tool Co. and the Rex File Co. into one concern to be incorporated under the name of the Heller Bros. Co., of Ohio, is under way. It is proposed to erect and equip a new factory building here with about 40,000 square feet of floor space, giving employment to about 150 additional workmen.

Another tow of manufactured steel products will leave Pittsburgh Dec. 15 with the departure of the Carnegie Steel Co.'s steamer CITY OF PITTSBURGH for New Orleans and intermediate ports.

Iron and Manganese Ores and Minerals

LAKE SUPERIOR ORES

Iron Ore

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 58 to 63 per cent	8.75 to 9.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, alongside docks, Atlantic ports

Spanish manganiferous ore, 54 per cent iron and 2 to 4 per cent manganese	10.25 to 10.75
North African low phosphorus	11.00 to 11.50
Swedish foundry or basic, 62 to 65 per cent	9.50 to 9.75
Spanish foundry or basic, 52 to 56 per cent	9.50 to 9.75
North African foundry and basic 50 to 56 per cent	9.25 to 9.75

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian	36 to 38 cents
Indian	36 to 38 cents
Caucasian, 53 to 55 per cent washed	38 to 40 cents

Fluorspar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$16.00
Washed gravel, imported duty paid eastern tidewater, per net ton	16.00 to 16.50

Construction and Enterprise

(*Continued from Page* 1467)

Diamond & Diamond, 2 Lafayette street, attorneys.

NEW YORK—Champion Hook & Eye Corp. has been incorporated with $50,000 capital by S. Bikoff, 299 Broadway, attorney.

NEW YORK—Abbott Fence Corp. has been incorporated with $10,000 capital to engage in structural work by H. Lehrich, 67 West Forty-fourth street, attorney.

NEW YORK—Craven Steel & Iron Works has been incorporated with $10,000 capital to manufacture building materials, by Ort & Forst, 280 Broadway, attorneys.

NEW YORK—General Bronze Corp. has been incorporated with $3,000,000 preferred and 300,000 shares no par value stock by U. S. Corp., 150 Broadway, attorney.

NEW YORK—Greco Mfg. Co. has been incorporated with $20,000 capital to manufacture razor sharpening devices by A. P. Ruffalo, 51 Chambers street, attorney.

NEW YORK—Tri-Square Corp. has been incorporated with $10,000 capital to manufacture boilers by J. H. Ginsberg, 353 Stone avenue, attorney.

NEW YORK—Shock Absorbing Wheel Corp. of America has been incorporated with $400,000 preferred, 1000 shares no par value stock by M. H. Zuckerman, 29 East Thirty-second street, attorney.

SYRACUSE, N. Y.—United States Hoffman Machinery Corp., 629 Temple street, plans to build a 1-story addition to its plant.

EASTON, PA.—Lehigh Foundries Inc. has been incorporated with $100,000 capital to engage in general foundry and machine shop business by Alexander A. Shumann, Morrisville, Pa.

ERIE, PA.—Liquo Gas Co. has been incorporated with $60,000 capital to manufacture and deal in ranges, stoves, heaters, etc. by F. N. McCreary, 619 Poplar street, Erie.

FREEPORT, PA.—Freeport Steel Products Co. has been incorporated with $150,000 capital to manufacture iron and steel products, by W. H. Hill, Leechburg, Pa.

McKEESPORT, PA.—Columbia Radiator Co. has awarded the general contract for a 1-story addition 70 x 212 feet, to its plant.

McKEESPORT, PA.—Rasp Fixture Co. Inc. has been incorporated with $30,000 capital to manufacture curtain rods and other metal or wood products, by John Rasp, H. J. Holleran and I. L. Jones, all of McKeesport.

MOUNT JOY, PA.—R. & R. Electric Corp. has been incorporated with 5000 shares no par value stock to manufacture and deal in electric irons, heaters, cooking utensils, etc., by M. A. Rollman, Mount Joy, Lancaster county, Pa.

NEW BRIGHTON, PA.—Riedel & Sons Mfg. Co., manufacturer of bronze castings, Marion Hill, is building an addition to the plant to engage in steel castings business. The building will be 40 x 60 feet.

PHILADELPHIA—Robert L. Gill, architect, is preparing plans for an auto body plant for Andrew Blum, 23 East Price street.

PHILADELPHIA—Philadelphia Boiler Works, 1708 Callowhill street, has been awarded a contract for alterations for the Henry Bower Chemical Mfg. Co., 2816 Gray's Ferry.

PHILADELPHIA—Atlas Conveyor Co. has been incorporated with $25,000 capital to manufacture conveying machinery, appliances, etc., by Percival K. Reed, 802 Valley road, Llanerch, Pa.

PHILADELPHIA—Bids were closed recently by the Ballinger Co., architects, for the erection of a manufacturing plant for Charles Lenning & Co., Richmond and Kennedy streets.

PHILADELPHIA—City Centre Plumbing Supply Co. has been incorporated with $25,000 capital to manufacture and deal in plumbing and heating supplies by Conrad C. Goodman, 1501 Olney avenue, Philadelphia.

PHILADELPHIA—Brackett Co. Inc., 108 Walnut street, has been incorporated with $10,000 capital to manufacture and deal in mechanical specialties, by Newell Brackett Jr., 4828 Larchwood avenue, Philadelphia.

PHILADELPHIA—Franklin Development Co. Inc. has been incorporated with $10,000 capital to manufacture and deal in mechanical and electrical machinery, specialties, etc., by William F. Oberhuber, 346 Windemere avenue, Lansdowne, Pa.

PHILADELPHIA—Electric Specialties Co. of Philadelphia Inc. has been incorporated with $25,000 capital to manufacture and deal in household appliances, vacuum sweepers, washers, lamps, etc., by William J. Maher, 6818 North Eighteenth street, Philadelphia.

PITTSBURGH—Witherow Steel Co., Neville Island, has awarded the contract for a 1-story addition 50 x 240 feet, to its machine shop.

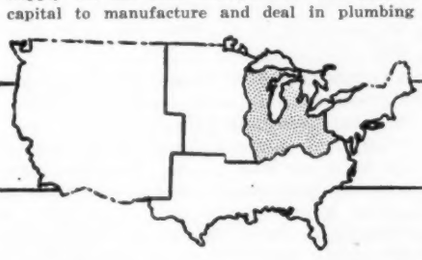
PITTSBURGH—Lawlor Electrical Refrigerating Co. has been incorporated with $5000 capital to manufacture and deal in electric refrigerators, parts, etc., by Joseph C. Lawlor, 5139 Coral street, Pittsburgh.

WEST YORK, PA.—Keystone Body Corp. has been incorporated with $5000 capital to manufacture and deal in automobile bodies, tops, etc., by Jacob F. Nickey and Paul B. Boyer.

WILLIAMSPORT, PA.—Williamsport Wire Rope Co. contemplates building an addition to its plant to include the installation of new machinery.

WILKES-BARRE, PA.—Pep Mfg. Co. Inc. has been incorporated with 20,000 shares no par value stock to manufacture and deal in automobile parts, machinery, etc., by Harry A. Greene, 582 North Franklin street.

YORK, PA.—Hoff Chain Co. has been incorporated with $5000 capital to manufacture and deal in chains and kindred products by Carlton L. Hoff, H. O. Sakemiller and Emory O. Schaeffer, all of York.



East Central

CHICAGO—Ilg Electric Ventilating Co., 2850 North Crawford, will build a 2-story plant addition, 80 x 81 feet.

CHICAGO—F. Voras, 4101 North Western avenue, has awarded the general contract for a 1-story addition to his machine shop, 40 x 135 feet.

CHICAGO—Hodgson Nettleton Co. Inc., 4639 West Chicago avenue, has been incorporated with $3000 capital to manufacture sheet metal products of all kinds with Heth, Lister & Collins, 33 South Clark street, correspondents.

CHICAGO—American Castings Co., manufacturer of aluminum castings, has moved to its new plant at 6833 South Irving avenue. its former plant will be improved to provide for further expansion.

CHICAGO—Alfred Fisher Furnaces Inc., 803 West Madison street, has been incorporated with $50,000 capital to manufacture and deal in oil burner systems, brass furnaces,

etc., with Adler & Adler, 11 South LaSalle street, correspondents.

CHICAGO—Coleman Lamp Co., 3617 South Ashland boulevard, expects to have its new plant completed by Jan. 1. The building is to be 300 x 400 feet. The company manufactures air gas pressure stoves, lamps, heaters, etc.

CHICAGO—Ornamental Wrought Iron Novelty Co., 1308 North Halsted street, has been incorporated with $25,000 capital to manufacture and deal in wrought iron novelties of all kinds, with Solomon Lettvin, 77 West Washington street, attorney.

CHICAGO—Convenience Products Corp., 10 South LaSalle street, suite 1650, has been incorporated with 200 shares no par value stock to manufacture mechanical devices with Marshall & Marshall, 10 South LaSalle street, correspondents.

CHICAGO—Richards Hydraulic Brake Inc., 310 South Michigan avenue, suite 706, has been incorporated with $10,000 capital to manufacture and deal in brakes and automobile accessories, with Clithero, Osborn & Stevens, 1034 Otis building, correspondents.

CHICAGO—Crawford Iron & Wire Works, 4400-08 Greenshaw street, has been incorporated with $20,000 capital to manufacture structural and ornamental iron and wire, etc., with Charles B. Goodman, 160 North LaSalle street, correspondent.

CHICAGO—Illinois Coil Spring Co., 2100 North Major avenue, has been incorporated with $25,000 capital to manufacture coil and flat springs of all kinds, tools, dies, etc., with Herbert J. Ferguson, 33 South Clark street, correspondent.

CHICAGO—Porcelain Tile Co., Builders building, LaSalle street and Wacker drive, has been incorporated with 1000 shares no par value stock to manufacture tools, machines and devices with Jones, Addington, Ames & Seibold, 77 West Washington street, correspondents.

CHICAGO—Plymetl Refrigerator Co. of Chicago, 225 North Michigan boulevard, suite 109, has been incorporated with $50,000 capital and 1500 shares no par value stock to manufacture and deal in cabinets and cabinet work of all kinds, with Herrick, Vette & Peregrine, 231 South LaSalle street.

NORTH CHICAGO, ILL.—American Steel & Wire Co., 517 Center avenue, plans to build a plant addition here.

QUINCY, ILL.—Excelsior Stove & Mfg. Co. is building a new foundry, 120 x 400 feet, and a 6-story warehouse 70 x 180 feet. (Noted Nov. 10).

URBANA, ILL.—G. M. Scientific Instrument Co., 129 North Race street, has been incorporated with $4200 capital to manufacture chemical, electrical and scientific instruments, devices, etc., with Green & Palmer, Flatiron building, correspondents.

CAMBRIDGE CITY, IND.—Western Oil & Refining Co., 310 North Meridian street, Indianapolis, will build a machine shop here.

EVANSVILLE, IND.—International Steel & Iron Co. is building an addition to its plant.

INDIANAPOLIS—Jacobs & Co. Inc., 631 South Delaware street, maker of metal and wood patterns, has awarded the general contract for two 1-story additions, 60 x 90 feet and 25 x 60 feet, to Mount Bros., 812 South Roena street.

MUNCIE, IND.—Warner Gear Co. has awarded the contract for a machine shop to be built here. (Noted Nov. 10).

NEWCASTLE, IND.—Teetor Perfect Circle Piston Ring Co. is installing machinery to double the capacity of its plant.

DETROIT—Yellumoid Co., Worcester, Mass., has leased part of the former plant of the Murchey Machine & Tool Co., of this city. The Yellumoid company manufactures gas kilns.

CLEVELAND—Board of education, F. G. Hogan, director, contemplates building a foundry addition at 535 Eagle avenue.

DAYTON, O.—Inland Mfg. Co., Coleman avenue, manufacturer of locking devices for automobile steering wheels, will build a 1-story addition to its power plant.

Southern States

MOBILE, ALA.—Board of revenue and road commissioners, E. C. Doody, clerk, will soon award the contract for a machine shop and garage for the county poor asylum.

MIAMI, FLA.—General Equipment Machinery Co. Inc., I. E. Schilling, president, has taken over the machinery department of I. E. Schilling Co.

ATLANTA, GA.—Chevrolet Motor Co., General Motors building, Detroit, is inquiring for machinery and equipment for proposed 1 and 3-story auto assembly plant, 483 x 762 feet and 65 x 240 feet, to be built on Sawtell road, here.

LOUISVILLE, KY.—Progress Stove & Range Co., W. L. Hollis, president, Sixteenth and Magazine street, contemplates rebuilding its foundry building damaged by a recent fire.

OWENSBORO, KY.—Cliff Machine Co., R. E. Birnie, manager, Louisa, Ky., will establish a plant for the repairing of engines, drillers' tools, etc., on newly leased property on Leitchfield road.

SHREVEPORT, LA.—Southwestern Cast Iron Pipe Co., L. L. Featherstone, 516 Dalzell street, plans to build a plant including a foundry and machine shop. (Noted Nov. 3)

THIBODAUX, LA.—Thibodaux Boiler Works Inc. has been incorporated with $50,000 capital by L. H. Braun, Joseph A. Braun and Henry Braun.

OKLAHOMA CITY, OKLA.—Sheffield Steel Co., Railway Exchange building, is inquiring for foundry and machine shop tools including riveting, boring and punching machines, welding equipment and cranes, for its machine shop being built here.

GALVESTON, TEX.—Texas Nail & Wire Mfg. Co. has been incorporated with $500,000 capital by K. Tideman, Guaranty building. The company will establish a plant to manufacture galvanized and barbed wire, and kindred products.

HARRISBURG, TEX.—R. A. Horne, 6506 Canal steet, has acquired the Marine Iron Works, Sycamore and Water streets.

HOUSTON, TEX.—Sampson Machinery & Supply Co., 23 Chartres street, has acquired a site 50 x 200 feet on St. Emanuel street, for an industrial building.

CHATTANOOGA, TENN.—Chattanooga Plating Works contemplates enlarging its plant to accommodate increasing business. F. A. Weber is manager.

MEMPHIS, TENN.—Shelby Machine Co., 392 South Main street, plans to build a 1-story plant and warehouse at Iowa and Michigan streets. E. L. Harrison, Fidelity Bank building, is architect.

West Central

BURLINGTON, IOWA—Romkey Airplane Corp., L. E. Cook president, Medical Arts building, Burlington, will build an airplane factory.

CEDAR FALLS, IOWA—Banner Brass Foundry Co. Inc. has been incorporated with $40,000 capital by J. G. Wyth and J. B. Newman.

MARSHALLTOWN, IOWA—Fisher Governor Co. will build a 1-story plant addition 20 x 75 feet. (Noted Dec. 1)

DULUTH—Zenith Furnace Co. will enlarge its plant at West Duluth, comprising blast furnaces, coke ovens and gas manufacturing plants, by the construction of a group of buildings to cost $1,000,000, with coke ovens and other improvements to cost $1,000,000 more. W. B. Castle is president. (Noted Nov. 17)

ST. CLOUD, MINN.—Donlin-Johnson Co., East Germain street, has started work on a new millwork plant including a main building 60 x 140 feet, a warehouse 40 x 120 feet and a lumber shed 20 x 140 feet.

ST. LOUIS—G. F. Carraher, 7467 Herman street, University City, maker of sheet metal products, plans to build a shop at 4237 Olive street, here.

JOPLIN, MO.—Rogers Iron Works Co. has been incorporated by L. T. LeBow, 201 North Byers street.

LINCOLN, NEBR.—McGrew Machine Co., 2124 Y street, has let the general contract to R. E. Sommberstedt, 1521 Le Gros avenue, for a 2-story factory, 50 x 55 feet.

McCOOK, NEBR.—Morton Bros., Lexington, contemplate building an airplane factory.

FARGO, N. DAK.—Fargo Foundry Co., 92 N. P. avenue, fabricator of structural steel and operator of a gray iron foundry, has let the general contract to Meinecke-Johnson Co., 11 Broadway, for a 1-story addition 45 x 48 feet to its foundry.

FARGO, N. DAK.—Contracts will be award-

ed soon by the Northwestern Sash & Door Co., Fergus Falls, Minn., for a 1-story sash and door factory 80 x 110 feet, to be built at First avenue and 16th street. Braseth & Houkom, 309½ Broadway, Fargo, are architects.

LEHIGH, N. DAK.—Lehigh Briquetting Co., now building a complete briquetting plant including a power plant, water tank, 1300-ton coal bunker, coal crushing plant, narrow gage railroad, storage tanks, etc., soon will receive bids on structural steel and steel plates. Ralph W. Richardson, 301 Zenith building, St. Paul, is the engineer.

MERCER, NEBR.—Mercer Light & Power Co. Inc. has been incorporated with $25.000 capital by George W. Stroupe and Gilbert Askerlund.

PORT ARTHUR, ONT.—Progress Motors Ltd. has been incorporated to manufacture and deal in motor engines, automobiles, machines, carburetors, etc., with $200,000 capital and 50,000 shares no par value stock by Henry R. Adamson, U. Adamson and Henry Catley.

SAULTE STE. MARIE, ONT.—Public Utilities commission has recommended extensive hydroelectric power development work at the St. Marys Rapids, as a result of its perusal of the report received from the Ontario Hydroelectric commission, Toronto.

TORONTO, ONT.—Universal Machinery Co. Ltd. has been incorporated with $40,000 capital by James B. W. Reid, Henry R. Corbett and Elmer W. W. Harper.

TORONTO, ONT.—Electrical Maintenance & Repair Co. Ltd. has purchased from the Berger Mfg. Co., Buffalo, a 3-story brick factory warehouse at 25 Brant street.

TORONTO, ONT.—Blackburn Construction Co. Ltd. has been incorporated with $40,000 capital by Clifford E. Blackburn, Charles B. Henderson and Herbert H. Clayton.

TORONTO, ONT.—No-Co-Rode Battery Terminals Ltd. has been incorporated to manufacture and deal in machinery and electrical batteries, with $50,000 capital by Andrew Rouse, Robert E. Rouse and Jacob J. Keller.

TORONTO, ONT.—R. G. Kirby, 539 Yonge street, Toronto, has been awarded the contract for a 1-story addition, 50 x 50 feet, to the plant for the Metallic Roofing Co. of Canada Ltd., 1194 King street west.

TORONTO, ONT.—Monarch Motor Sales Ltd. has been incorporated to manufacture and deal in motor vehicles, automobiles, motor engines, etc., with $50,000 capital by William E. C. McCarthy, William J. McCullum and John E. Tansy.

TORONTO, ONT.—Wilson Scale & Machinery Corp. Ltd. has been incorporated to manufacture and deal in scales, weighing apparatus and machinery etc. with $50,000 capital by Sydney E. Wedd, Bruce V. McCrimmon and John W. Middleton.

MONTREAL, QUE.—Canadian Hydro-Electric Corp. Ltd. has been incorporated with $25,000,000 capital and 1,000,000 shares no par stock by Wilbert H. Howard, Francis C. Dobell and Charles R. McKenzie.

MONTREAL, QUE.—Canadian Wright Ltd. has been incorporated to manufacture and deal in engines, apparatus, and mechanical devices for airplanes, etc., with $50,000 capital by James A. Mathewson, Arthur A. Smith, and Florence I. Stewart.

WESTMOUNT, QUE.—Visu-Lite Ltd. has been incorporated to manufacture and deal in lighting and illumination apparatus with $50,000 capital and 1000 shares no par value stock by Walter S. Johnson, Joseph C. Savage and Kathleen Gale.

CHURCHBRIDGE, SASK. — Churchbridge Grain Stooker Co. Ltd. has been incorporated to manufacture and deal in stookers, tractors and farm implements, with $100,000 capital by George H. Richardson, Albert Wagner and Frank Bily.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., and East Chicago, Ind.	52.00
Birmingham	51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Per Net Ton Chester, Pa. and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK

Per Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

New Trade Publications

ASBESTOS ROOFING—A leaflet by the Continental Products Co., Euclid, O., describes its roof coating for roofs of various types and for repairs.

VALVES—Homestead Valve Mfg. Co., Homestead, Pa., has issued a catalog of its line of valves, illustrated and containing specifications and description.

COMBUSTION METERS—Leeds & Northrup Co., Philadelphia, has published a reprint of an article describing the use of meters for maintaining good combustion control.

CHUCKS—Norton Co., Worcester, Mass., has issued a booklet describing its chuck for segmental wheels. Illustrations show its application and the text describes advantages of its use.

SHEAVE BLOCK—A new type of sheave block, containing fewer parts and of lighter weight than preceding blocks is described in a leaflet by the Nugent Steel Castings Co., Chicago. The leaflet is illustrated.

METALLOGRAPHIC EQUIPMENT—Bausch & Lomb Optical Co., Rochester, N. Y., has issued a catalog of its optical instruments applied to metallographic study of metals. It is well illustrated to show resulting photographs of metal areas. The instruments are described and illustrated.

HOT PRESSED BRASS—Zeh & Hahnemann Co., Newark, N. J., is distributing a bulletin devoted to production of hot-pressed brass parts. The company manufactures presses for producing these parts and advantages claimed for pressed parts are described.

FRICTION CLUTCHES—Foote Bros. Gear & Machine Co., Chicago, will issue shortly a new catalog of its friction clutches, transmission machinery and equipment, as manufactured by the A. Plamondon Co., whose plant and business was bought recently by the Foote Co.

MECHANICAL SLEDGE—Chambersburg Engineering Co., Chambersburg, Pa., is circulating an illustrated bulletin covering its mechanical sledge for blacksmith work, hand forging. The machine and its products are illustrated.

RAILROAD EQUIPMENT — Worthington Pump & Machinery Corp., New York, has issued a catalog describing its equipment for railroads. This includes feed-water heaters, air compressors, steam and power driven reciprocating pumps, etc.

MAGNETIC BRAKES—Cutler-Hammer Mfg. Co., Milwaukee, has issued a 20-page catalog showing the features of its magnetic brakes. Applications of the brake are discussed and ratings, dimensions and other data are given. The brakes are made in two types for direct and alternating current service.

ROLLER BEARINGS—Hyatt Roller Bearing Co., Harrison, N. J., has published a booklet devoted to its roller bearing for railroad use, principally on cars. It is illustrated by halftones of cars on which it is in service and diagram of the bearing and details. Charts illustrate data of performance.

WOODWORKING MACHINES—Oliver Machinery Co., Grand Rapids, Mich., has issued a 32-page catalog describing its saw benches, band saws, jointers, trimmers, grinders, sanders, and other types of woodworking machinery. Illustrations of the various machines are presented with features of construction and dimensions.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½
REAMED AND DRIFTED		
Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½
EXTRA STRONG—PLAIN ENDS		
Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	26½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized. These preferentials increased by one extra 5 per cent in meeting competition.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld		
¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
7 to 8-inch	28	13
7 to 12-inch	26	11
PLUGGED AND REAMED		
Two points less than above		
EXTRA STRONG, PLAIN ENDS		
¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld		
½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½-inch	+13	+25
3 and 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Weld)	
2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off
(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)	
CHARCOAL IRON	
1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¾ to 4½-inch	5
(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)	
SEAMLESS COLD DRAWN	
1-inch	56 off
1¼ and 1½-inch	48 off
1¼-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off
SEAMLESS HOT ROLLED	
2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off
(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)	

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot .20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot. 20c

Plates ordered 7.65 pounds per square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c

Hull materials subject to U. S. Navy Dept. Specifications for Medium or Soft Steel .10c

High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications 1.00c

Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B 1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection.....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

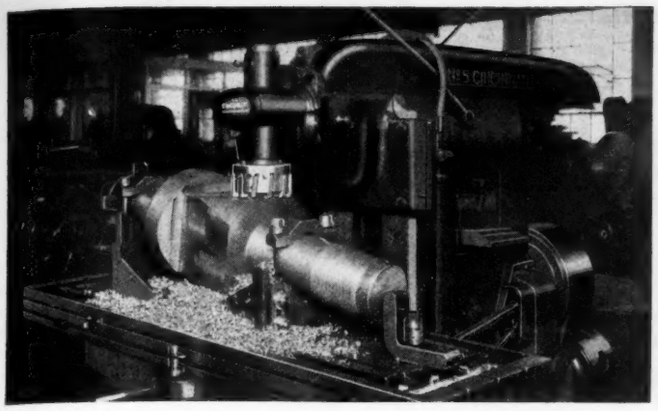
Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)
Additional extra .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with reentrant angles)
Additional extra .20c



Cincinnati No. 5 Plain High Power Miller, Timken-Equipped, on a 15″ casing spear forging, with 8″ high power face mill. ¼″ cuts at 31 r. p. m., with feed of 3⅝″ to 4⅝″.

Timken rigidity, due to high capacity and steel-to-steel rolling motion, is not the only factor in permitting fast, clean heavy work. The use of Timkens results in simplicity and compactness which improve the entire machine design, expediting every operation.

A 25% Betterment

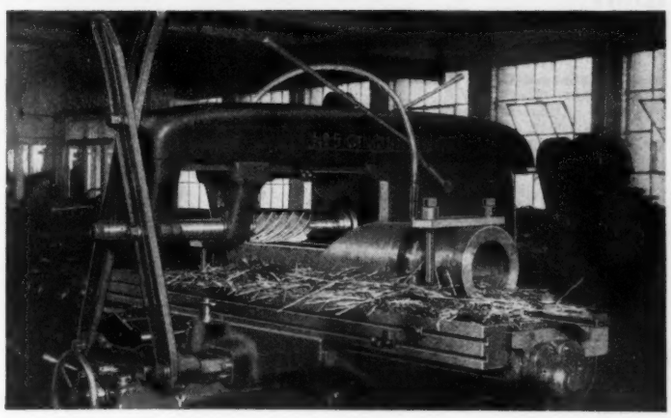
in general efficiency is largely credited to a combination of the Timken Bearings on the spindle and throughout the drive of the Cincinnati No. 5 Plain High Power Miller and the special productive features of the machine itself. Timken friction elimination means power and lubricating efficiency. Greater load area—extreme Timken radial, thrust, and shock capacity—assures utmost rigidity. Chatter and inaccuracy are guarded against in heaviest, high speed cutting. Increasing and improving production, preserving precision, and indicating progressive design, Timken Tapered Roller Bearings are sharing in the greatest reputations in Industry.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN *Tapered Roller* BEARINGS

Cincinnati No. 5 Plain High Power Miller, Timken-Equipped, on 10″ forged socket body, with 4½″ x 10″ spiral mills. ¼″ cuts at 60 r. p. m. with feed of 9¾″ to 15″.

Timken-mounted spindles, free of all possible friction, do not ride on a heavy oil film which tends to inaccuracy. There can be no stronger evidence of the value of Timken Bearings than their widespread use on the spindles of finest tools.



"Where-To-Buy"

A classified-by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertisers and by referring to advertisement you can get full particulars about products.

ABRASIVES
Pittsburgh Grinding Wheel Co. Rochester, Pa.

ABRASIVE (Polishing)
Norton Co., Worcester, Mass.

ACCUMULATORS
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
Air Reduction Sales Co., 342 Madison Ave., New York City.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

ACETYLENE IN CYLINDERS
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 12th and Etna Sts., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

AIR FILTERS
Midwest Air Filters, Inc., Bradford, Pa.

ALLOYS
Electro Métallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Summerill Tubing Co., Bridgeport, Pa.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Pittsburgh Annealing Box Co., 801 Beaver Ave., N. S., Pittsburgh, Pa.
Riter-Conley Co., Oliver Bldg., Pittsburgh, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., The, 3675 E. 78th St., Cleveland, O.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
National Tube Co., Frick Bldg., Pittsburgh, Pa.

BABBITT METAL
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.

BALING PRESSES
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.

BANDS (Welded Iron and Steel)
Akron-Selle Co., Akron, O.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARROWS
Sterling Wheelbarrow Co., Milwaukee, Wis.

BARS (Alloy)
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Wheelock, Lovejoy & Co., Inc., 128 Sidney St., Cambridge, Mass.

BARS (Concrete Reinforcing)
Bethlehem Steel Co., Bethlehem, Pa.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Ryerson, Jos. T., & Son., Inc., 16th and Rockwell Sts., Chicago, Ill.

BARS (Iron and Steel)
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Penn Iron & Steel Co., Creighton, Pa.

BARS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Keystone Drawn Steel Co., Spring City, Pa.
Migret, Rene, 7 Boulevard DeFontaine, Charleroi, Belgium
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS, STEEL (Electric Furnace)
Timken Roller Bearing Co., The, Canton, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Blystone Mfg. Co., Ironton St., Cambridge Springs, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Migret, Rene, 7 Boulevard Defontaine, Charleroi, Belgium
Phoenix Iron Co., The, 20 So. 15th Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.

BEARINGS (Ball)
Hoover Steel Ball Co., Ann Arbor, Mich.
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Motor)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS, (Oilless)
Rhoades, R. W., Metaline Co., Inc., Rhoades Bldg., Long Island City, N. Y.

BEARINGS (Roller)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Tapered Roller
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Thrust)
Hoover Steel Ball Co., Ann Arbor, Mich.
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BELT FASTENERS
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.

BENCHES AND FRAMES (Drawing)
Morgan Construction Co., Worcester, Mass.

BENCHES AND FRAMES (Wire Drawing)
Vaughn Machinery Co., Cuyahoga Falls, O.

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